THE BUILDER

Incorporating ARCHITECTURE & THE BRITISH ARCHITECT

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NEWS SUMMARY

PROFESSOR A. E. RICHARDSON'S term of office as President of the Royal Academy is to be extended for a year. p. 801

THE LONDON COUNTY COUNCIL announce that a satisfactory start has been made with the first phase of the Picton-street housing scheme in which, as an experiment, a nominated contractor was engaged for construction of the buildings. p. 804

A HIGH COURT JUDGE has set aside an arbitrator's award whereby Finchley Borough Council were directed to pay £4,000 to a firm of building contractors. p. 813

THE RIBA have approved the draft of a proposed form of tender for nominated suppliers which is to be issued as a standard document. p. 813

THE MAIN PROVISIONS of the Housing Subsidies Bill are given. p. 817

THE PRESIDENT, NFBTE, has appealed to all members of the National Federation to lend their wholehearted support to the Government's improvement and conversion programme for old property. p. 819

A METHOD OF PLANNING and programming traditional house-building that has achieved considerable improvements, both in man-hours and building time, in experiments undertaken by the BRS, is described. p. 821

THE BUILDING EXHIBITION is to be opened on Wednesday next by the Minister of Works, at Olympia, London. An even greater attendance than in previous years is expected, and a review of the plant, materials and equipment to be shown, together with a diary of events, begins on p. 825

THE BOARD OF TRADE have announced the terms of reference of the Monopolies and Restrictive Practices Commission's inquiry into common prices and collusive tendering. p. 835

TRAINING FOR BUILDING

THE idea of collaborative training for building—by which is meant the association during some parts of their technical education, preferably under the same roof, of architects, quantity surveyors and young men intending to enter building on its executive and managerial side—is, of course, nothing new. Thirty years ago the Ministry (then the Board) of Education in conjunction with several forward-looking architects and builders looked into the possibilities of initiating such training. That nothing came of the deliberations was evidence less that the idea was flawed than that the conditions were not ripe for such a radical change. This did not prevent a number of technical institutions both in Scotland and England from making experiments along the lines of a school for building education in its widest sense, though such experiments were necessarily tentative.

Within the last two years there has been a fresh awakening of interest in the subject, and at least two *ad hoc* bodies have been studying the problems anew. The forward-looking McMorran report on Architectural Training made to the RIBA recommended a re-examination of the subject, and a direct result is the Conference on Training to be held at the RIBA at the end of January.

Detailed comment on the subject must wait, but it is at least certain that the Conference and its implications will be warmly welcomed by the whole industry. That there is now in being a Board of Building Education (on which are jointly represented the Institute of Builders and the National Federation) is fortunate indeed. Without some such body parallel to the Board of Architectural Education, in fact, any recommendations which the Conference might make on collaborative training for building would remain inoperative.

In assuming that the forthcoming meeting will produce some practical proposals, it should not be thought that the theory advanced of joint training, attractive as it at first sight sounds, is simple. A good many factors are involved, not least the complexity of the architectural student's current training and the embryonic state of the builders' ambitious plans for training for management—not least for securing to their side of the industry an adequate share of young men of promise. But these matters are less an obstacle than a challenge which, it may be hoped, the Conference will accept.

One thing is certain, that the solution to a problem of such importance and magnitude is hardly to be found as a result of a day's deliberations. It would seem essential that a Study Group or an *ad hoc* committee be constituted to bring forward practical proposals for action, and it may be hoped that the organising committee will be ready with suggestions for this.

RENTS AND HOUSING STANDARDS

THE Government's decision to reform the housing subsidies—discussed in our issue last week—will probably have repercussions on the rents of privately owned houses as well as of dwellings owned by local authorities and other public bodies. It is, of course, only the latter class of dwelling that is subsidised, but the reform of the subsidies will almost certainly lead to some increase in council house rents and thus create an even greater discrepancy between the general level of council and private rents. In anticipation of this situation, the Minister of Housing has already announced that the Government will review the operation of the Rent Acts and make known their conclusions in due course.

What objects should the Government have in mind in conducting this review? First, the benefit of an artificially low rent may lead some families and individuals to stay longer in a particular house than they otherwise would. It tends to produce under-occupation by encouraging older couples to stay on in the same house after their families have grown up and made their own homes. To some extent, it may tend to reduce the demand for newer, better-quality housing. For both these reasons, an unduly low level of rents is to be deplored.

Second, it seems that, even with the benefit of the increases permitted by last year's Housing Repairs and Rents Act, rents are still too low in many cases to provide a sufficient margin for repairs. Not only landlords, but sanitary inspectors as well consider the Act to be ineffective. The Chief Sanitary Inspector for Southwark told the National Housing and Town Planning Council last month that no informed public health officer had anticipated that the Act would be a panacea, but it appeared, he said, so far to have failed to have been even a palliative. This is hardly surprising since it was quite apparent at the time the Act was passed that it was based on at least two misconceptions. The first of these was that it was reasonable to expect landlords, as a condition of the repairs increase, to put the property into good condition out of rents which were inadequate for current repairs let alone the accumulated defects of 15 years of strict control. The second misconception was that the permitted increase of twice the statutory repairs allowance would be adequate for future repairs. This permitted increase was said to be based on the findings of the Girdwood Committee which reported that the cost of repairs in Grade A districts in April, 1953, was 316 compared with 100 in 1939; the increase in the lower graded districts must have been larger because of the proportionately greater rise in wages. By the time the 1954 Act was passed there had been a further increase in wages (by far the most substantial item in repair costs) and since then there have been further increases.

It is scarcely surprising if landlords feel that it is not worth while spending substantial sums in order to achieve so small an increase in rent. It is true that, where a house is unfit for human habitation, the local authority can compel the landlord to spend money on making it fit. The tests for this purpose are largely the same as for the purpose of the repairs increase, so that in complying with a statutory notice the landlord may be fulfilling the conditions which entitle him to the repairs increase. There is, however, this important difference: in determining whether a house is fit for human habitation under the Housing Acts, regard is to be had, amongst other things, to the state of "repair"; in order that the landlord may claim the increase under the Rent Acts, the dwelling must be in "good repair"—obviously a higher standard than required by the Housing Act. The Government should consider the possibility of completely assimilating the two sets of standards.

In any event, it is clearly necessary to provide for a larger repairs increase than is permitted at present. It is to be hoped, however, that the Government will be more generous than that in their treatment of landlords. The permitted increases make no allowance for the effect of inflation since 1939 on the net income of the landlord. It is quite unreasonable that landlords should be treated as the one class in the community which is not entitled to an increase in income as compared with 1939. As a building newspaper, we have no brief for either landlord or tenant, but it is only right to point out that this shabby treatment of property owners can have only ill effects on standards of property maintenance. It is, no doubt, true that many houses have outlived their economic life, but so long as they remain in private ownership their owners must be treated fairly. To treat landlords otherwise is to turn them into a depressed class and to destroy any hope of spending money on the improvement of their properties.

A policy of higher rents may not be popular, but it cannot be too strongly emphasised that unduly low rents lead to poor housing.

BUILDING ON SHOW

THE Building Exhibition, which opens at Olympia next week, this year scores what the darts player might call a "double top." It not only is the biggest building display ever mounted, but completes 60 years under the organisation and control of the Montgomery family. Both these are matters for congratulation. In an industrial world where the personal touch is too seldom found, it is a record to be proud of that the Building Exhibition should remain under the control of the family of the late Mr. Greville Montgomery who rescued it in 1895 from the sideshows and whelk stalls of the old Agricultural Hall and made it the greatest technical exhibition of its time. The 92 exhibitors of 60 years ago have grown to over 600 to-day, filling the three halls and galleries of Olympia.

It is this latter fact which provides the second matter for congratulation, as evidencing the flourishing state of building. The industry has never been more prosperous or fully occupied than at present. That there must inevitably be some recession resulting from Mr. Butler's interim Budget proposals is accepted. Higher interest rates and the impending end of new subsidised housing will have their effect on the volume of work. But that effect can be minimised if output can be raised—in simple terms, if more can be built for the same money.

Higher production depends on several factors—sensible clients, good teamwork between architect, builder, and sub-contractors, and intelligent and steady work by operatives. In this day and age it needs more besides—good materials which reduce maintenance, equipment which is fully efficient and cheap to run, and plant which, through being labour-serving, is also labour-saving. It is particularly in these last directions that the Building Exhibition plays a unique part. Collected under one roof is the best and most up-to-date display of those fine materials and aids to construction upon which cheaper building must so largely depend for achievement. And the educational side of building—management as well as craft—is not neglected. Government and industry have joined forces to see that the overall picture of collaboration between the various sides of the industry is kept to the fore.

For those who require an advance guide to the exhibits, as well as for those at home and overseas who may not be able to visit Olympia, the present and two following numbers of *The Builder* contain notes on the various groups of exhibits which should be helpful. It now only remains to wish good luck to this great epitome of building in Britain which the Minister of Works will send next Wednesday on its triumphant way.

Notes of the Week

ROYAL ACADEMY ENCORE

BY offering himself for re-election as President of the Royal Academy for a further year from December 6 next, Professor A. E. Richardson has made history. The action of the General Assembly of the Academy in making a special personal exception to the rule which sets 75 as the retiring age for a president is quite unprecedented, and the Queen's approval of the Assembly's action means that the President's re-election next month is a foregone conclusion.

The Academicians' action will not command universal support, for the President has invited the criticism that he is a destructive critic who has so far had little to offer as replacement; the man in the street too often stands confused by words in which he cannot discern a practicable theme. The President's critics should nevertheless remember that a first presidential year is often well spent in demolishing shibboleths and in clearing the ground for action; that action should follow in the year of grace now to be accorded. We shall be surprised if the President does not seize his chance.

FURNITURE CONTEST

SIR HUGH CASSON, RDI, MA, FRIBA, FSIA, presented the awards for the prize-winning entries in the recent national leather furniture design contest on October 25 at Heal's, London. This contest was sponsored by the Dressed Hide Leather Producers in conjunction with the magazine "House and Garden." The aim of the competition was to encourage designs for leather upholstered chairs, sofas and chaise-longues, suitable for quantity production at medium prices.

LEATHER FURNITURE.—Seen above is the prizewinning entry in the competition for furniture design, submitted by Mr. Michael Inchbald (left) who is seen shaking hands with Sir Hugh Casson. (*See Note.*)

The judges were the designers, Messrs. Joseph Lawrence, Christopher Heal, FSIA, Ernest Race, RDI, FSIA, and Mr. Michael Middleton, editor of "House and Garden." There was a total of 52 entries, some in prototype form and others consisting of coloured sketch designs and scale drawings.

The opinion of the judges was that while there was an encouraging number of entries, they were in some respects disappointing. Many of the technical drawings were excellent, but were all too often for designs which lacked ideas. Conversely, some of the more ingenious and elegant designs proved upon examination to be impracticable for quantity production, or outside the terms of the competition. In the partly upholstered class they awarded the first prize of 100 guineas to Mr. Michael Inchbald, MSIA, FRSA, for a design in metal, wicker and leather which fulfilled all the conditions of the competition and made excellent use of natural materials. Only a few submitted work in the fully upholstered class, and in this category the judges felt unable to recommend any award.

Sir Hugh, who was introduced by Mr. A. D. Paterson, chairman of the dressed hide leather committee, said that there was at the moment a great deal too much talk about design and not enough done about it. Too much publicity might well be an embarrassment to the designer; his job was not to be different but to be better. There was also a certain danger of a gulf forming between the world of design and the general public.

He added that, although most of the entries were remarkably well designed, they did not make sufficient use of the qualities of the material itself.

COMING EVENTS

MONDAY, NOVEMBER 14

RICS.—Presidential address by Mr. W. R. Brackett, OBE, TD, FRICS. 12, Great George-street, SW1. 5.30 p.m.

TUESDAY, NOVEMBER 15

SCIENTIFIC FILM ASSOCIATION.—"The Film in Education," by Mrs. Helen Coppen, vice-president SFA, and Mr. Alec M. Hughes, MA, general secretary, SFA. The Mezzanine Cinema, Shell-Mex House, Strand, WC2. 6.30 p.m.

THE MODULAR SOCIETY.—"Modular Co-ordination—an Industrial Tool," by Mr. Lennart Bergvall, architect, SAR, chairman, Swedish Commission on Modular Co-ordination. RIBA, 66, Portland-place, WC. 7 p.m.

RICS.—Annual dinner of the quantity surveyor members. Grosvenor House, Park-lane, W.1. 7 for 7.30 p.m.

SOCIETY OF ENGINEERS.—Annual dinner. St. Ermin's Hotel, Westminster, SW1. 7 for 7.30 p.m.

WEDNESDAY, NOVEMBER 16

ARCHITECTURAL ASSOCIATION.—Symposium on "The Problem of Vehicles in Housing Areas." 36, Bedford-square, WC1. 10 a.m. to 5.30 p.m.

RICS.—"Tendering Procedure," by Sir Thomas Bennett, CBE, FRSA, FRIBA. 12, Great George-street, SW1. 6.15 p.m.

ROYAL SOCIETY OF HEALTH.—London sessional meeting on "The Design of Health Buildings." Denison House, 296, Vauxhall Bridge-road, SW1. 11 a.m.

INSTITUTION OF STRUCTURAL ENGINEERS (YORKSHIRE BRANCH).—Joint meeting with Yorkshire Association of Institution of Civil Engineers, and talk on "The Allt-Na-Lairige Prestressed Concrete Dam" by Mr. J. A. Banks, OBE. Leeds University. 6.30 p.m.

THE ARCHITECTURE CLUB.—Supper, followed by debate on "New Buildings no longer express their Purpose," with Sir Howard Robertson, MC, ARA, PP.RIBA, and Mr. Denys Lasdun, MBE, FRIBA, as opening speakers. Kettner's, Romilly-street, W1. 7 for 7.30 p.m.

THURSDAY, NOVEMBER 17

FACULTY OF ARCHITECTS AND SURVEYORS.—Film on "The Story of 'Superlative,'" with lecture, by British Paints, Ltd., 68, Gloucester-pl., W1. 6.30 p.m.

INSTITUTION OF PUBLIC HEALTH ENGINEERS.—"The Quality of Rainfall Run-off Water from a Housing Estate" by Mr. R. Wilkinson, PhD, ARIC, Water Pollution Research Laboratory, DSIR. Caxton Hall, Westminster, SW1. 6 p.m.

INSTITUTION OF STRUCTURAL ENGINEERS (WESTERN COUNTIES BRANCH).—Combined meeting with the Institution of Civil Engineers, and talk on "Shuttering" by Mr. C. Parry. University of Bristol. 6 p.m.

SOCIETY OF CHEMICAL INDUSTRY (ROAD AND BUILDING MATERIALS GROUP).—"Organic Matter in Soil in Relation to Soil-Cement Stabilisation" by Messrs. K. E. Clare and P. T. Sherwood, Road Research Laboratory, DSIR. Lecture Hall, Junior Institution of Engineers, Pepys House, 14, Rochester-row, Westminster, SW1. 6 p.m.

HAMMERSMITH SCHOOL OF BUILDING AND ARTS AND CRAFTS.—Annual prize distribution by Mr. E. Maxwell Fry, FRIBA. Hammersmith Town Hall, King-street, Hammersmith. 7 p.m.

FRIDAY, NOVEMBER 18

INSTITUTE OF MUNICIPAL BUILDING MANAGEMENT.—Annual dinner and dance. Palmerston Restaurant, 49, Bishopsgate, EC2. 6 for 6.30 p.m.

HASTE OR SPEED?

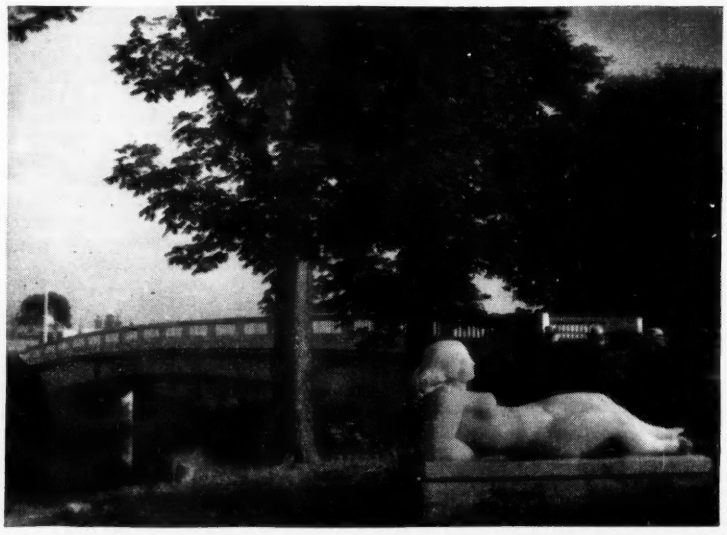
IS IT REASONABLE to expect tenders for buildings estimated to cost over half a million pounds to be prepared within three weeks? Birkenhead housing committee, anxious to make an early start on their 10-storey flats at Eldon-place and to use "a modern method of speedy erection," have given tendering contractors until November 16 to price their bills. On the face of it, the committee are asking for the impossible, that is if they want a keen price and an early start. In building the client can get haste or speed; he cannot have both.

INDUSTRIAL DESIGN

TWO PUBLICATIONS having a similar appeal have just appeared simultaneously—The Design and Industries Association Year Book and Membership List, 1955, and the Annual Report of the Council of Industrial Design. The DIA was founded in 1914 and the COID in 1945, the former being an independent and the latter a Government-sponsored organisation. Both are doing excellent work in the campaign for improved industrial design. The DIA Year Book has for its chief literary feature a thoughtful article on "Design and Public Taste," by Mr. Harold F. Hutchison who, while producing a certain amount of evidence to show that public taste is improving, suggests ways and means of further expediting that desirable process.

The article is accompanied by a nice variety of illustrations, some of which are clearly included as examples of "how not to do it," though why the author (or the caption writer) should go out of his way to damn with faint praise the small fountain set up a year ago in Sloane-square, when there are plenty of real disfigurements to be attacked, is not clear.

The COID report, which is illustrated by a selection of work in the contemporary mode, including domestic furniture, textiles and equipment, gives a useful summary of the year's work and includes a special article, taking the form of a 4 pp. inset, by Sir Gordon Russell, Director of the Council, on the Design Centre for British Industries, which is to be opened at 28, Haymarket, SW1, next year. Useful publications, these, for all who wish to keep in touch with activities and develoments in connection with industrial design. The DIA Year Book is obtainable from 13, Suffolk-street, SW1, price 1s., the COID Report from 28, Haymarket, SW1, price 1s. 6d.



Prestressed concrete bridge over the Somme at Abbeville.

NORMAN TOUR

Looking at

Architecture from a Bicycle

From a Correspondent

EIGHT days spent recently in ambling, if that is the word, on a bicycle in Normandy and Picardy does much to convince one that those unfortunates who have only known the automobile age lose much when it comes to travelling abroad. Something slower than a car is required if the leisurely tasting of the countryside is sought. Stevenson and the immortal Paragot have tried the donkey, but Paragot, at least, failed to find an ass of the true vagabond character. Walking is perhaps the ideal if time permits. The bicycle, one submits, is the perfect compromise, which satisfies the needs of locomotion and of logic. For if the instinct of the motorist is to push on, that of the cyclist is to get off.

Mid-September then found us and our tubular steeds, pre-1939 vintage, decanted on the *quai* at Dieppe, most pleasant of Norman ports. A good deal of building has been done there in the past few years, and an example of the French instinct for using reinforced concrete well is seen in the new customs building (shown on facing page). Plain-textured precast slabs are used as permanent external shuttering, and the result is satisfying. Some housing is being built in the harbour areas, but rents are high, and the average *Dieppois* remains in patched-up, outdated accommodation which often lacks modern sanitation and running water.

In this, Dieppe is in line with the general housing condition of France. As Mr. B. S. Townroe recently wrote in these columns, 20 per cent. of French buildings are over 100 years old, while in Paris it has been stated that 84 per cent. of dwellings are without baths and 46 per cent. without wc's. Such new housing as Normandy has to show is mostly in the towns and with some exceptions—such as in Boulogne, Rouen and Le Havre—seems to be occupied by the better-off middle class. The average French income will not stretch, it seems, to covering the cost of food and an economic rent, and food comes first in France.

In the Somme area, new flatted work is largely post-and-panel, but is visually unexciting, due principally to the habit of scoring the rendered finish with lines to simulate brickwork and washing with a hideous liver-tinted slurry. Bricks and bricklayers seem to be at a premium.

Nevertheless, there are some interesting buildings. A prestressed concrete bridge over the Somme at Abbeville loses nothing by the siting near by of a piece of sculpture, while a new work, as yet unfinished, by the Parisian architect de Koc, built to house the Musée Boucher, also at Abbeville, makes use of the ancient *belfroi* or watch-tower as an entrance to the museum which houses a fine collection of tapestries, paintings and relics of medieval life. The galleries are lit entirely from the sky, and the quality of illumination is even.

COMPETITION IN AMIENS

One of the pleasures of cycling in the pleasant, smiling valley of the Somme used to be the approach to Amiens. That pleasure is diminished in no small measure by the challenge offered to the majestic outline of the cathedral by the Perret tower. One of Auguste Perret's last works, this block of offices rears itself 100 metres into the sky, and one must wonder that the Department should have commissioned a building which, its intrinsic merits apart, competes so blatantly with the cathedral. Amiens, at least, has no doubts. *Un betise* seems the unanimous verdict. It has cost the earth !

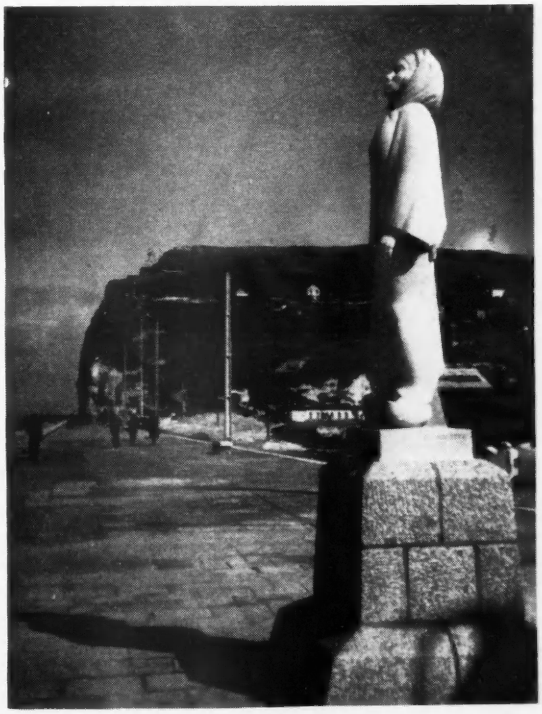
Outside the towns, one cycles along the excellent French roads in perfect safety (the French motorist prefers to go into the ditch than to come within yards of a bicycle), passing constantly between the Clôs Normands—those apple orchards which to many spell Normandy. Cattle are sleek, but farm buildings for the most part sadly in need of repair. So back through Neufchatel-en-Bray to Dieppe and a final dish of oysters with the last of the francs, before going aboard. Only the accompanying glass of muscadet steeled the nerves against the sight of the bicycles, with all our belongings attached, poised at the end of the crane's jib above the harbour before swooping, like some great flying bedstead, into the hold *en route* for Newhaven and home.

Musée Boucher de Perthes ("Father of Prehistoric Studies"), Abbeville. de Koc, architect. The interior of main gallery is shown on facing page.

The customs building, Dieppe Harbour.

La Tour Perret, Amiens. (" Un betise.")

Interior of the Musée Boucher de Perthes, Abbeville. The roof is not yet finished.



" Watching for the Return ": This statue of a fisher lass faces the sea at Dieppe. G. Thurotte, sculptor.

THE LONDON COUNTY COUNCIL'S NOMINATED CONTRACTOR EXPERIMENT

Satisfactory Start on Picton-street Housing Scheme

THE London County Council announce that a satisfactory start has been made with the first phase of the Picton-street housing scheme in which, as an experiment, a nominated contractor was engaged for the construction of the buildings, and that agreement has now been reached with the contractors (John Laing and Son, Ltd.), for work to proceed on the second phase of the scheme. In a report on the scheme's progress to date, the LCC emphasise that it is much too early to arrive at any final assessment of the value of the experiment. The Council is not contemplating the major adoption of the principle of nominated contractors, but has approved its application in this or other specially selected cases as an experiment and in order to gain knowledge. Following are extracts from the report:—

Among the main reasons why special systems of construction are not always adopted or made the subject of experiment—even though there may be *prima facie* grounds for being reasonably certain that some as yet undetermined improvements in time or cost would result—are not only the inherent technical difficulties but also the contractual problems which emerge.

The Standing Orders of the Council lay down clearly the procedure to be followed for the construction of its buildings, prescribing that the selection of contractors shall be by the invitation of tenders. An annual dispensation is granted to the architect to negotiate, in a limited number of cases, for fixed price contracts for new housing work where a suitable existing contract exists as a basis for this negotiation. The Council's Standing Orders further prescribe that copies of the bills of quantities shall be supplied with the specification and drawings to firms who wish to tender and that each firm shall be invited to tender on these bills of quantities. Comparable estimates of costs are always made by the Council's own technical officers and tenders are considered against such estimates as well as against each other.

The object of this procedure is, of course, to safeguard public expenditure.

Under the normal method of competitive tendering the architect plays little part in deciding erection techniques to be used on site, since this is the responsibility of the contractors. As a consequence the architect, if he does not know which techniques will be used, is unable to adapt his design ideas to take maximum economic (or even aesthetic) advantage. Similarly, the normal method of tendering does not allow the contractor to play any part in design details, since he is not brought into the picture until all the drawings are complete and the bills of quantities prepared.

If the full possibilities of new constructional techniques are to be exploited—and this implies that their possible influence on design should be fully taken into account—it is essential that a contractual system should be adopted which would allow for the building to be designed in terms of those techniques from its inception. It had been proved that attempts to convert a block of flats designed for "traditional" construction to any other system could never produce more than an unsatisfactory compromise.

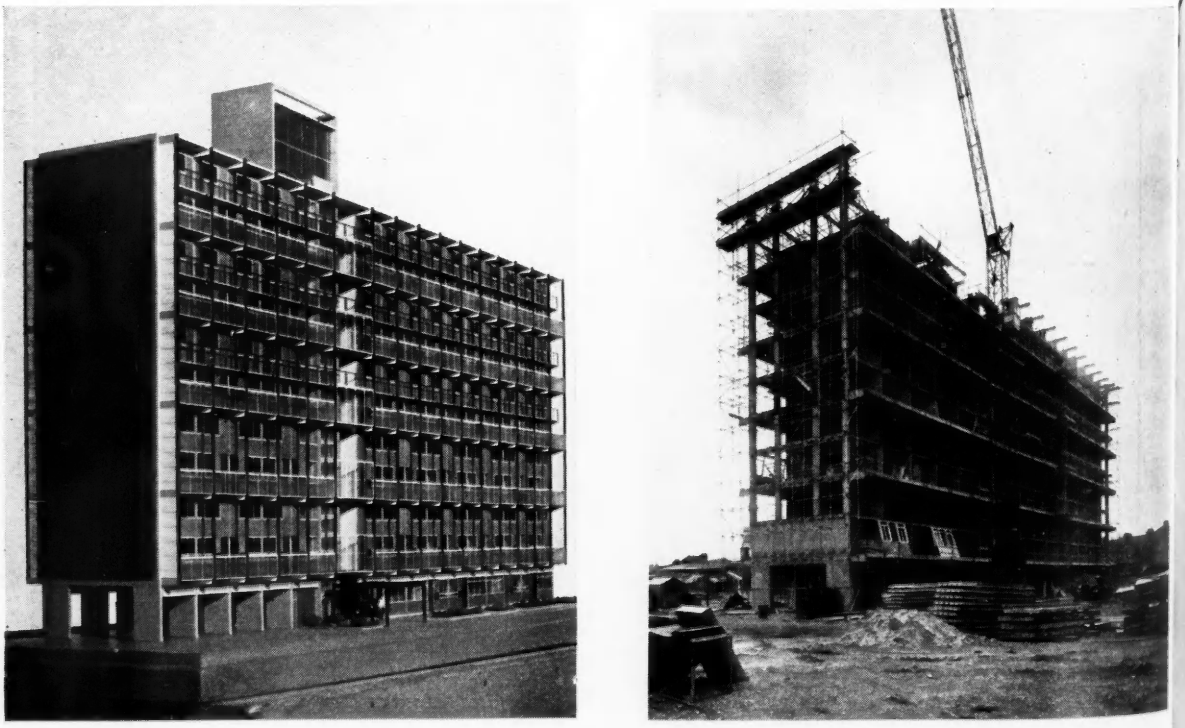
If such a new system was to be employed, however, some contractual arrangement is needed which would enable the building contractor to be nominated at a very early stage in order that he might collaborate with the architect's design team during the whole progress of the job.

The procedure envisaged was as follows:—

(i) The Council's quantity surveyor to prepare his preliminary estimate of the cost of the work on the basis of known methods of construction used in previous schemes by the Council and this figure to be the target cost sum or price.

(ii) The architect, his design team and the consulting engineer, together with the Council's quantity surveyors, and representatives of the nominated contractor to work on the scheme together and when all points of detail of construction have been settled, bills of quantities to be prepared. These bills then to be priced by the Contractor to reassure himself of the feasability of building within the contract target price.

(iii) Savings made, due to the employment of different techniques, etc., to be shared between the nominated contractor and the Council, thus providing a strong incentive to both parties to search for savings. On the other hand, excess of final cost over the contract target price to be borne by the nominated contractor.



A model of one of the 11-storey blocks in the Picton-street scheme, seen from the access-gallery side, beside a photograph showing progress to date.

The possibilities of this type of arrangement were considered by the Council in 1953, and approved for application as an experiment to the housing scheme for a site at Picton-street, Camberwell. This scheme was selected as the most suitable of those available at that time which had reached a stage where the layout had been settled in principle but contract particulars had not further been advanced. It was also of a size suitable for worthwhile experiment, containing multi-storey buildings and with the possibility of a considerable degree of repetition work of which advantage could be taken to effect economies.

PICTON-STREET SCHEME

The housing site at Picton-street has an area of 17.9 acres, and was acquired mainly under Part III of the Housing Act, 1936, as a "clearance area," being at that time largely occupied by unfit and dilapidated houses. The area was acquired piecemeal and the scheme therefore relates to a site of very irregular outline with small pockets of development separated from the main area by existing residential and industrial buildings. The ground hereabouts is fairly level and most of the existing road pattern has been retained. The commencement of work on successive portions of the site had to be timed to accord with a rather complicated programme of acquisition spread over some two years.

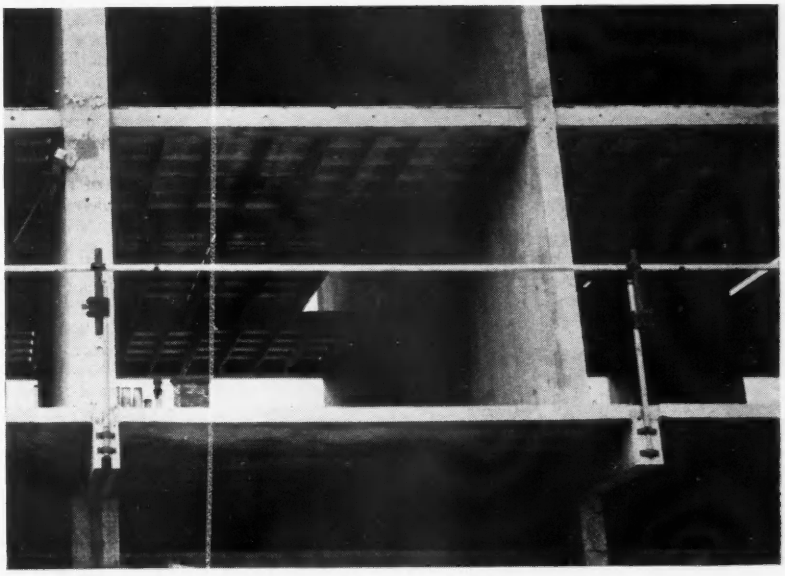
The scheme provides for the construction of 682 dwellings: 320 in four 11-storey maisonette blocks, 295 in 16 4-storey maisonettes, 42 in 3-storey balcony access flats and the remainder (25) in terrace houses. This gives a total density of 38 dwellings to the acre. There will also be a small number of shops, a club room, minor ancillary buildings and children's play spaces.

The constructional works which began in January, 1955, have been divided into two phases. Phase I, now in progress, comprises 250 dwellings and Phase II 432 dwellings. The first 11-storey block of maisonettes and three 4-storey blocks are now well under way.

CONTRACT ARRANGEMENTS

As mentioned above, normal competitive tendering was dispensed with and the building contractor, John Laing and Son, Ltd., was nominated at the design stage—some 14 months before the commencement of work on site.

An estimate of the cost of the scheme —approximately £1,700,000—was prepared by the Council's quantity surveyors on the basis of the known costs of comparable accommodation in current contracts which had been let after normal competitive tendering. This estimate was adopted as the target estimate for the work and became the "target price," i.e., the maximum amount which the Council can be required to pay, subject to adjustment for certain defined variations such as wage rates and materials. The contractor was given and availed himself of the opportunity of checking this estimate at an early stage so as to satisfy himself that it was reasonable.



Part of an 11-storey block in course of erection showing part of the structure of a double unit. The timber floor sections are lifted by crane and are light enough to be man-handled into position. The chase in the cantilever (bottom left) is for a rwp.

On completion of the design stage, bills of quantities were prepared for Phase I and priced independently by the Council and by the contractor. At this point the contractor was given the option of withdrawing if he considered the "target price" was inadequate. The scheme, moreover, having been divided into two phases, a break clause was included in the contract documents to allow the contractor the opportunity of withdrawing from Phase II if, for instance, he came to the conclusion that the actual cost of Phase I would exceed the "target price." Agreement to continue with Phase II has, in fact, now been reached between the Council and John Laing and Son, Ltd., and this firm will therefore continue with the whole scheme.

Payment is made to the contractor on the basis of actual costs, plus a fixed percentage for overheads and profits. Any excess of actual cost over and above the target estimate will be borne entirely by the contractor. Any savings which can be achieved by keeping actual cost below the target figure will be shared between the contractor and the Council. Both parties therefore have a strong incentive to keep actual costs as low as possible. The procedure for variations, the definitions of "target price," "prime cost," "overheads," etc., are defined in the form of contract, which is an extensive document.

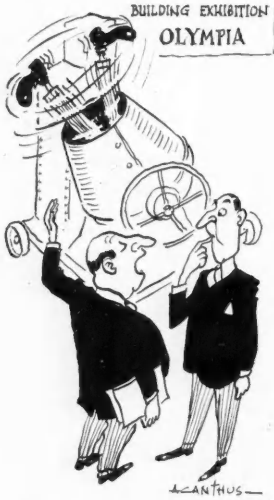
DESIGN TEAM

In addition to the architect, quantity surveyor and contractor members, the design team included representatives of the consulting engineers, Messrs. Ove Arup and Partners and of the Building Research Station, DSIR.

The purpose of nominating the contractor at the design stage was that his knowledge and experience of building techniques and materials, his knowledge of plant and of site organisation and his views on how building time and costs might be reduced should be available to the architects and engineers at that stage and be allowed to exert due influence upon the design. In this instance the results of co-operation between the contractor and the designers have been fruitful. For example, the decision at an early stage to use a tower crane of known size and capacity for the erection of the 11-storey blocks enabled this design to proceed on the basis of large prefabricated components, suitable for economic handling by this crane. Again, as a result of joint discussion, an early decision to attain as much speed as possible in erection time by reducing to a minimum such wet trades as plastering, *in-situ* concrete (in horizontal members) and brickwork, fundamentally affected the design of walls, partitions and floors.

DESIGN STAGE INVESTIGATIONS

During the design stage cost investigations of alternative designs were made for most components of the buildings, both 4- and 11-storey. These cost estimates were prepared independently by the quantity surveyor member of the architect's team, by the contractor's staff and by the Building Research Station surveyors and the results subsequently compared. The structural engineers prepared alternative designs for the structure with column and beam frames, with frames combined with walls and with both at varying spacings. A highly original scheme was also prepared by the engineers for precasting the concrete walls in the form of staggered 2-storey-height units which would interlock with the precast floors. These schemes were discussed with the contractor's plant specialists and production engineers in relation to the use of large cranes and



"I feel, Wren-Jones, you need not be quite so literal when people ask for a demonstration!"

alternatively of light cranes rising with the building.

A number of different designs were also prepared for the floors—in precast concrete, *in situ* concrete, timber with and without beams, etc. The possibility of precasting floor slabs to give an adequate finish on the underside so that the ceilings can be decorated direct, omitting plaster, was considered, as was the suggestion to decorate the *in situ* concrete direct with a skim coat of self-coloured "plaster," and experiments in this were made at the "mock-up." Taking all factors into account the system of construction now in use is estimated to be cheaper than the most economical column and beam system. Omission of reinforcement in the alternate walls (which has been allowed experimentally under Part IV of the Building Act) is a further economy. Again, savings have been made by quality control of concrete and by the design of mixes according to the strengths actually found to be achieved in tests, rather than in accordance with the Standard By-law mixes.

Methods or materials investigated in the search for economy will vary as prices and availability vary, but, nevertheless, valuable lessons of general application have emerged.

ACKNOWLEDGMENTS

Many persons are involved in the various facets of the work, but prime responsibility rests with the Architect to the Council, Dr. J. L. Martin, and the Principal Housing Architect, Mr. Whitfield Lewis, together with the Assistant Housing Architect, Mr. Michael Powell and Mr. A. W. Cleeve Barr, Senior Architect-in-charge of development, and Mr. H. G. Gillett, Architect-in-charge, assisted by Messrs. E. J. F. Clarke, P. De Saules and T. O'Toole. Other members of the Architects' Department chiefly concerned are the Principal Quantity Surveyor, Mr. M. F. Rice, assisted by Mr. R. V. Wiseman and Mr. I. Carter and Mr. A. H. Withers, Finance Officer, assisted by Mr. C. C. Chandler. Mention should also be made of Mr. J. Croft, formerly Chief Inspector and Mr. J. Clancey, his successor, of the Public Health Department.

Dr. Weston, Mr. R. F. Broughton and Mr. W. Allen, of the Building Research Station, DSIR, are also closely associated with the scheme. The appointed quantity surveyors are Messrs. L. A. Francis. The Research and Development Department of John Laing and Son, Ltd., the nominated contractor, has been concerned with the project from its design stages.

ROADS EXHIBITION.—This view of the Harbour Freeway at Los Angeles, USA, may be seen at a photographic exhibition of roads, bridges and garages entitled "Roads —How the World is Solving its Traffic Problems," now being held at the Institution of Civil Engineers, London, until November 18. The exhibition was opened on November 7 by the Minister of Transport and was organised by the Institution of Highway Engineers, the Pavings Development Group and the Joint Committee on Structural Concrete.

CORRESPONDENCE

PULVERISED FUEL ASH

To the Editor of *The Builder*

SIR,—In your issue of October 21, the article "Pulverised Fuel Ash" referred to the need for the use of p.f. ash in the building industry to be a combined and planned operation between the Central Electricity Authority and the users of the ash. It can only be a coincidence that quite recently the Authority have been considering the formation of an advisory committee for just that purpose, to be composed of representatives from all sections of the building industry, with, it is hoped, the assistance of representatives of DSIR. Invitations to join this committee will shortly be issued.

The Authority hope that considerable support to the economic use of p.f. ash will be forthcoming from this committee.

ERNEST LONG, Secretary,
Central Electricity Authority.

Central Electricity House,
Trafalgar Buildings, SW1.

"THE STORY OF SURREY IN MAPS"

To the Editor of *The Builder*

SIR,—This is the title of an exhibition which the Surrey Branch of the Royal Institution of Chartered Surveyors, with the co-operation of the County District Councils, propose to stage at Kingston upon Thames and at Guildford in September next.

The exhibition is to relate to the Shire of Surrey, and it is hoped to depict "The story of Surrey in maps" over five centuries; many of the instruments, both ancient and modern, used by surveyors in their work will also be included in the exhibition.

The purpose of my letter is to inquire whether any of your readers have any old maps, manuscripts or similar documents relating to the Shire of Surrey which they would be kind enough to lend for inclusion in the exhibition; needless to say very great care would be taken of them.

P. D. SCOTT, Hon. Secretary,
Surrey County Branch, RICS.

16, Couchmore-avenue, Esher, Surrey.

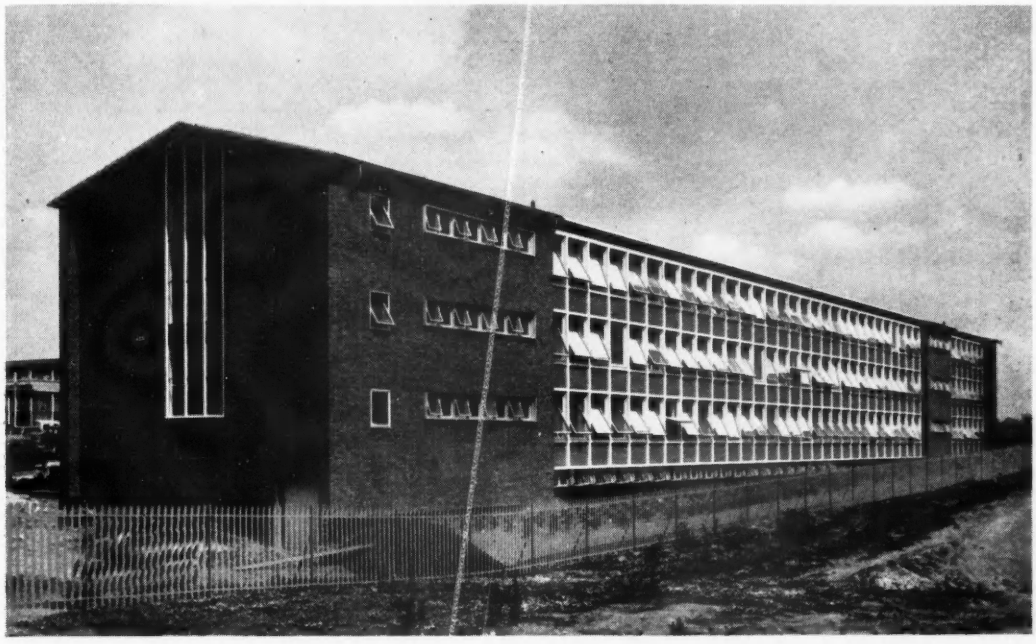
NAILS FOR SLATES AND TILES

To the Editor of *The Builder*

SIR,—Is our learned friend Mr. Gilbert H. Jenkins sincere in advocating the building by-law prohibition of zinc or galvanised nails in roofing, and yet allowing steel wire nails to be used? Why use copper nails to secure short-lived materials? The heads of several so-called copper slate nails are surely much too small to be any form of guarantee against early maintenance costs.

N. GLITHERO.

118, Oxney-road, Peterborough.



View from south-west.

Office Block for ICI, Welwyn Garden City, Herts

Architect
E. D. JEFFERISS MATHEWS, OBE, FRIBA
(J. DOUGLASS MATHEWS & PARTNERS)

Associate Partner in charge
R. S. POOLE, ARIBA

Quantity Surveyor
R. E. N. LOWE, FRICS

Consulting Structural Engineer
FELIX SAMUELY, BSc, AMICE

Engineering Department, ICI Plastics Division
J. W. MAYHEW, LRIBA (Site Supervision and Contract Administration)
J. M. MORRISON, BEng (Electrical and Mechanical Design)

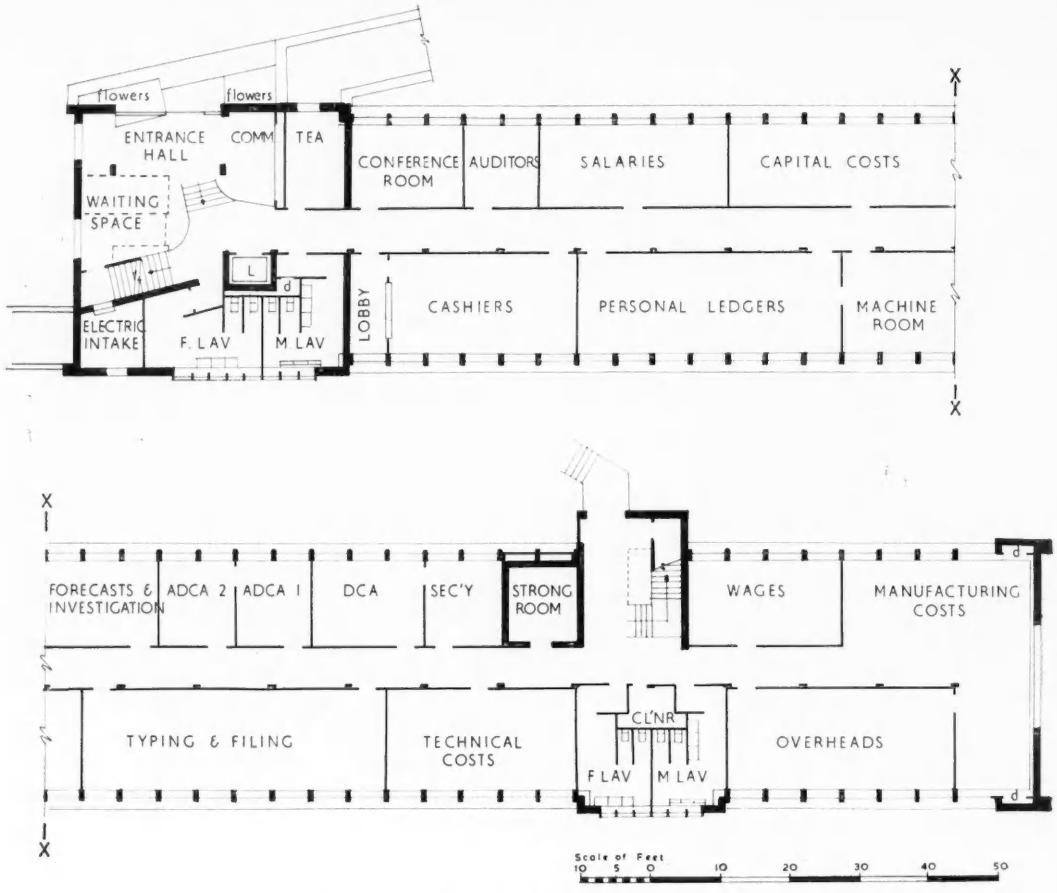
Builders
WELWYN BUILDERS, LTD.

THE clients' requirement was a departmental office block of 31,800 sq. ft. to provide accommodation to be arranged generally in a large number of small and medium sized separate offices ; the accommodation to rely principally on natural lighting and ventilation. The block to form one of three blocks of similar size.

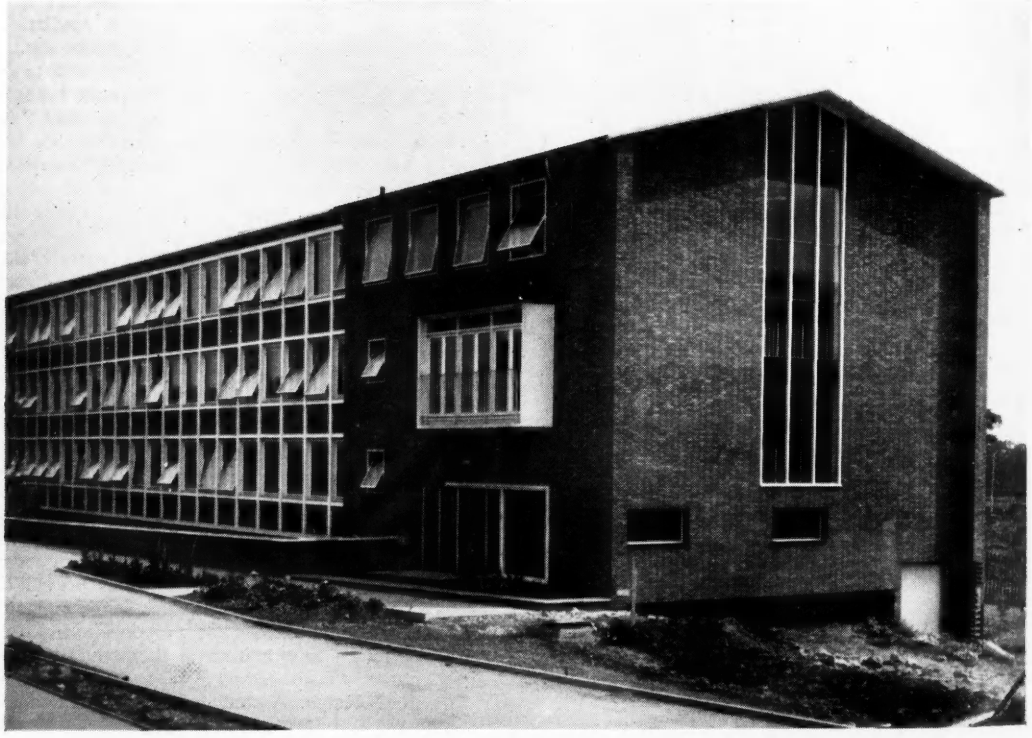
Site: On the company's property in an area to be developed for the grouping of all departmental offices. This area surrounds a bowling green and when fully developed will, with the other blocks, form a wide and loosely knit three-sided quadrangle around the bowling green. The actual site for this block is along one of the perimeters of the property and has a fall along the major axis of the building of some 8 ft.

Basis of Design: The requirements and site dictated a long, narrow block of ground and two upper floors, with partial basement for stationery stores, with offices each side of central corridors. To provide offices of two depths—a clients' requirement—the corridor is off-set off the centre line, the structural spine frame being on one side of the corridor. A study of existing and the company's standard office furniture, which was used in the building, and of the accommodation requirement for a large number of comparatively small offices, many for one, two or three persons, led to the choice of a 5 ft. 6 in. module on the longitudinal axis. On the lateral axis the 4 ft. module was adopted as providing the best dimensions and simplifying cross-partitioning. The 5 ft. 6 in. module has proved on balance to have disadvantages which in general outweigh the advantages and it has been decided in future blocks to return to a uniform 4 ft. module in both directions.

Structural Design: A study of the accommodation



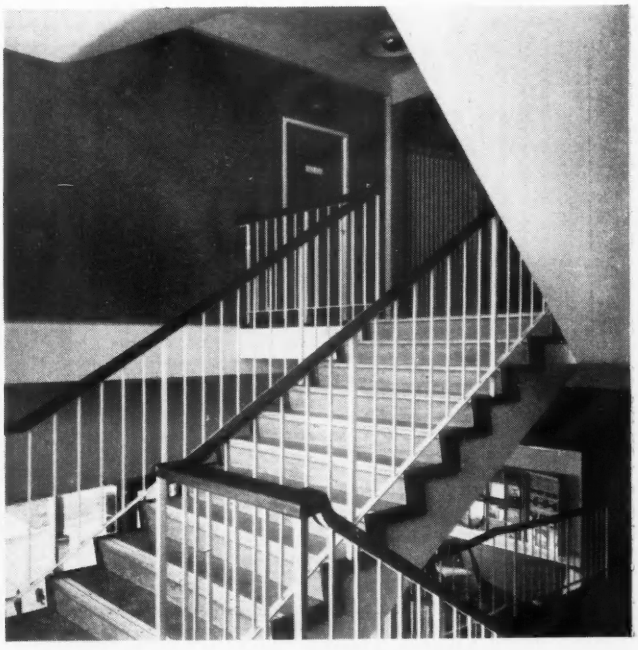
Ground-floor plan. Below: View from north-west.



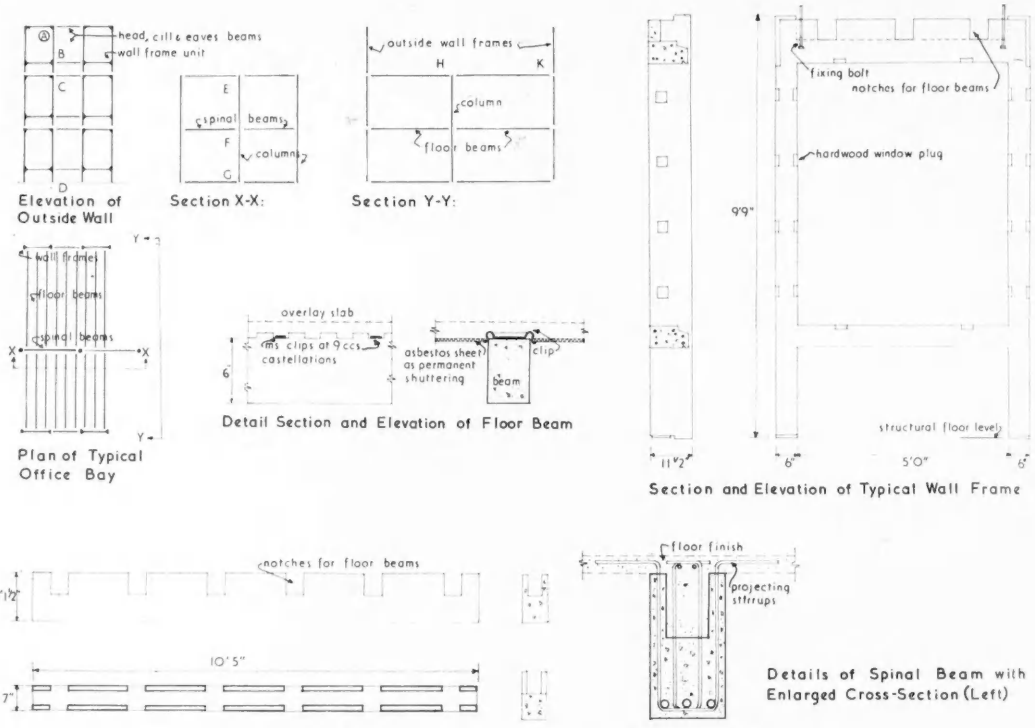
Entrance hall.

and the design solution and requirement led to the adoption if a structural form carrying the loads along each perimeter wall and—to provide an economical span and reduce cross-beams in order to simplify internal partition arrangements and provide a flat unbroken ceiling surface without increasing the cubic content by deep floor spaces—a longitudinal spine structure. Related to this choice of structural design was the fact that internal services were of a simple and limited kind and could, with the exception of electrical services, be carried along the perimeter so avoiding the necessity for ceiling ducts. The choice of the 5 ft. 6 in. module had also to be related to the structural form to ensure an economic relationship.

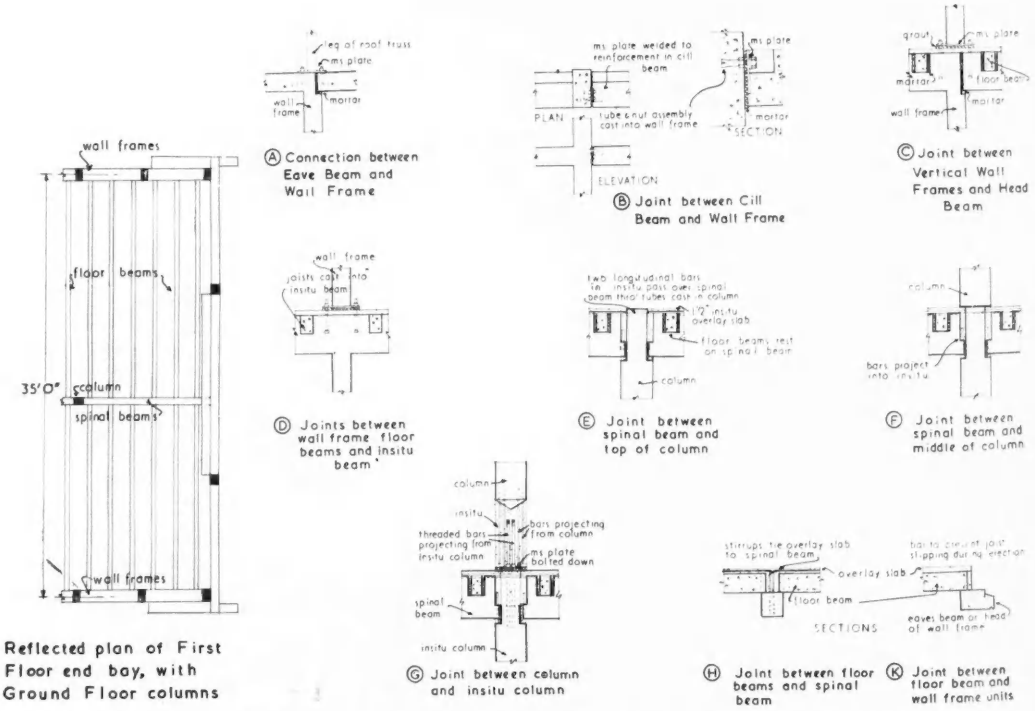
These requirements were solved by the adoption of a precast reinforced concrete "H" frame on a 5 ft. 6 in. structural grid and a vertical unit to each floor level and built up along each perimeter wall to provide a fully perforated structural wall rather than an orthodox frame structure spanning comparatively wide spaces and calling for a cladding and fenestration arrangement divorced from the structure. To avoid floor space obstruction the spine element of the structure to reduce the cross-span is a partially *in situ* cast and partially precast reinforced concrete post and beam structure. The floor is united to and part of the structure, and is composed of prestressed precast reinforced concrete joists spanning



Right: Staircase.



Details of main precast concrete structural frame members.


wall frames
floor beams
35'0"
column
spinal beams
wall frames
Reflected plan of First Floor end bay, with Ground Floor columns
eq of roof truss
ms plate
wall frame
mortar
Ⓐ Connection between Eave Beam and Wall Frame
ms plate welded to reinforcement in cill beam
ms plate
tube & nut assembly cast into wall frame
PLAN
SECTION
ELEVATION
Ⓑ Joint between Cill Beam and Wall Frame
grout
ms plate
mortar
floor beam
wall frame
mortar
Ⓒ Joint between Vertical Wall Frames and Head Beam
wall frame
joists cast into insitu beam
Ⓓ Joints between wall frame floor beams and insitu beam
two longitudinal bars in insitu pass over spinal beam thro' tubes cast in column
½" insitu overlay slab
floor beams rest on spinal beam
column
Ⓔ Joint between spinal beam and top of column
column
bars project into insitu
Ⓕ Joint between spinal beam and middle of column
column
insitu
bars projecting from column
threaded bars projecting from insitu column
ms plate bolted down
spinal beam
insitu column
Ⓖ Joint between column and insitu column
stirrups tie overlay slab to spinal beam
overlay slab
floor beam
bolts to prevent joint slipping during erection
eaves beam or head of wall frame
SECTIONS
Ⓗ Joint between floor beams and spinal beam
Ⓚ Joint between floor beam and wall frame units

Details of joints as indicated A-K relate to the general framework diagrams, top left of page. On the lower left is the reflected plan of first-floor end bay.

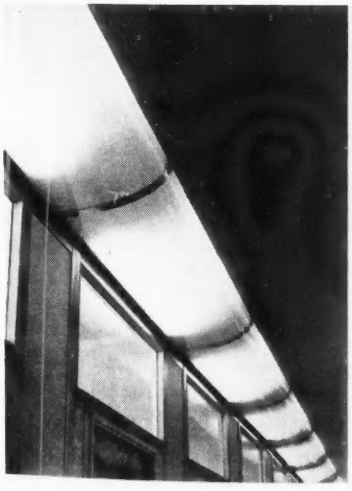
between the perimeter " walls " and across the spine frame. Permanent shuttering is suspended between the joists and a thin (1½ in.) mesh reinforced " skin " poured over providing both the structural unification of the whole slab and structural tie and the floor and floated off to eliminate the orthodox screed.

The spine frame stops under the floor of the top storey and the whole width of the building is spanned by light steel roof trusses designed on the principle of an " A " frame giving very low steel tonnage. To achieve this most economically the 15 deg. pitch roof was adopted and therefore this element in the design develops from the economical structural requirement rather than any purely æsthetic whim for flat or pitched roofs.

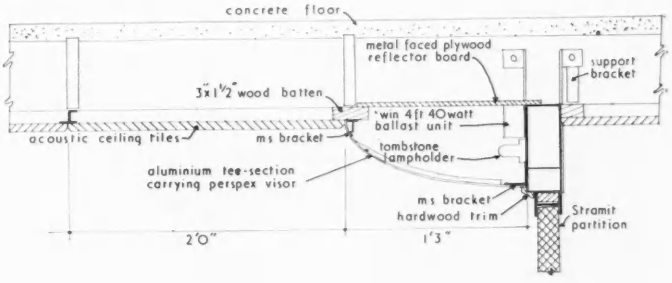
Services: Heat and power sources come from the company's centralised plant and therefore only a small services distribution room was required for the block. Space heating is by low temperature hot water in convector radiators along the perimeter walls. Electric services are those normal for offices including certain services for accounting machinery. Two main runs traverse the length of the building on each side of the corridor, and mains also run along each perimeter. Electric mains are run down each side of the corridor in metal ducts which form the head of the longitudinal partitions. Telephone cables take up similar alignments to the electric mains.

The space heating circuits, the convector radiators, and the electric services along the perimeter walls, are surface-run between floor and window cill on the back of the internal lining of the cladding panels and the back of the precast concrete frame.

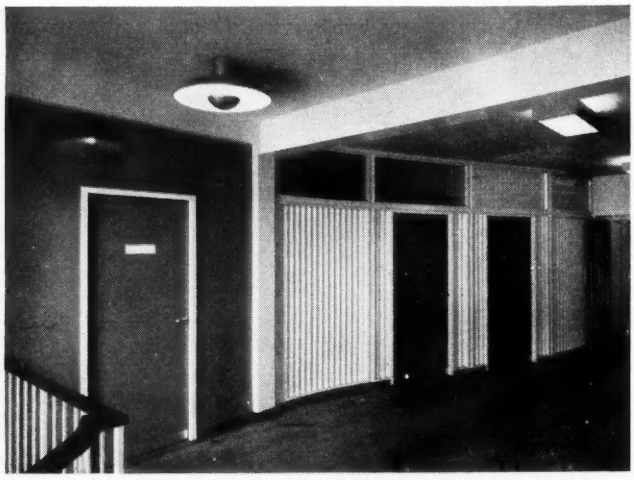
Cladding and Finishings: The cill panels of the precast concrete perimeter structure are faced with a buff-pinky coloured Dutch 2 in. facing brick with cavity, and an internal partition block inner skin of high thermal insulation. The windows are hardwood central pivot hung double glazed with Venetian blinds hung between the inner and outer glazing. The roof is composed of compressed strawboard panels covered with built-up bitumen sheet roofing and pea grit. These panels have the advantage of not requiring a screed, so that the whole roof structure is " dry." Guttering is precast and the gable end verges are *in situ* cast concrete



A typical corridor.



Fluorescent lighting is used generally. A standard Perspex cased fitting has been adopted, designed by the clients. Along the length of corridors a continuous Perspex cased cornice type fitting is used to avoid what was considered to be a risk of giving an exaggerated perspective if individual point spots of light were adopted.



Landing at first floor.

Corridor at first floor.

An executive's office.

with a high degree of finish comparable to artificial stone. By the use of these materials maintenance decoration is eliminated and considerable simplification in the detailing can be achieved since the precast units combine a number of functions in the weathering, sealing and finish of the eaves and verges.

The staircase windows are of special design in timber frames and mullions with the glazing lapped—" green-house " fashion —the joints being sealed with rubber strips and so avoiding pronounced horizontal members and thereby making the glass surface virtually self-cleansing. Windows to lavatories are in pre-cast concrete frames and mullions and are metal casements.

Internal Finishings: The main office floor spaces are designed to be flexible for the arrangement of partitions. The " permanent " finishings are therefore confined to the flooring—" soft " p.v.c. strip on a granulated cork underlay; the perimeter wall casings to the cills and mullions; and the ceiling which is acoustic fibre tiles to the modular pattern and slung under but against the prestressed precast floor joists. The demountable partitions are compressed strawboard in aluminium framing and are decorated with emulsion paint. Finishings of the ancillary areas are orthodox.

Colour: Externally, the concrete perimeter structure is painted in white cement paint. All windows are painted white. Internally strong colours have been used on staircases and landings—on the main staircase the side wall is strong plum red, the landing walls in a " Wedgwood " tone blue, both colours relieved by the use of white for trim, balustrades and framing where exposed. The corridors of the office areas have the exposed spine frame painted dark red and white on alternate faces. The offices generally are finished in a very pale blue-grey with the acoustic ceilings left in natural light-coloured fibre board. The flooring is a mottled buff.

Sub-contractors and suppliers were:

Facing bricks, R. Y. Ames, Ltd.; structural steelwork, Sommerfelds, Ltd.; precast, prestressed concrete units, Holland & Hannen and Cubitts, Ltd.; precast concrete units and stone dressings, Atlas Stone Co., Ltd.; internal partitions and roof panels, Stramit Boards, Ltd.; roof covering, Standard Flat Roofing Co., Ltd.; wood pivot-hung windows, Holcon, Ltd.; internal mullion casings, Edmonton Panel Co., Ltd.; metal windows, C. E. Welstead, Ltd.; slate window surrounds, The Bow Slate and Enamel Co., Ltd.; mechanical services and sprinkler installation, Matthew Hall and Co., Ltd.; lift, Marryat and Scott, Ltd.; strong room door, The Chatwood Safe and Engineering Co., Ltd.; doors, William Mallinson and Sons, Ltd.; w.c. partitions and doors, Flexo Plywood Industries, Ltd.; roller shutters, Dennison Kett and Co., Ltd.; acoustic ceiling tiles, Campbell Denis, Ltd.; p.v.c. flooring, Korkoid Decorative Floors; metal grilles and balustrade, E. Coules and Son, Ltd.; ironmongery, Pryke and Palmer, Ltd.; sanitary fittings, John Bolding and Sons, Ltd.; and venetian blinds, J. Avery and Co., Ltd.

OFFICE BLOCK FOR ICI, WELWYN GARDEN CITY, HERTS

LAW REPORT

Arbitrator's Award Against Council Set Aside

QUEEN'S BENCH DIVISION.

BEFORE MR. JUSTICE DEVLIN.

FINCHLEY BC v. MATTHEW JAMES AND CO.

ON a motion by Finchley Borough Council in the Queen's Bench Division on October 31, Mr. Justice Devlin set aside an arbitrator's award whereby the council were directed to pay £4,000 to building contractors. The council had retained the sum, which would normally have been due under contract, because of alleged defects in the construction of council flats.

In the case, which came before the judge as a special paper, Finchley Council asked that the award of an arbitrator, dated June, 1955, in a dispute between them and Messrs. Matthew James and Co., Ltd., building contractors, of Violet-street, London, E, should be set aside. The motion was opposed by the contractors. Also concerned were the Helical Bar and Engineering Co., Ltd., of Victoria-street, London, SW, against whom Messrs. Matthew James sought an order setting aside the arbitrator's award to that firm against them, should the Finchley council's motion succeed.

Mr. Gerald Gardner, QC, for the council, said that by a contract dated June, 1949, Messrs. Matthew James agreed to erect 102 flats at a cost of £155,000 for the council. The Helical Bar Engineering Co., were sub-contractors who carried out work to flooring and roofing.

As a result of defects in the work, there was an arbitration between the council and the contractors, and another arbitration between the contractors and the sub-contractors. It was agreed by all the parties that the arbitrator, Mr. Leonard A. Culliford, MC, FRIBA, FRICS, MTPI, should decide both the disputes at the same hearing.

The arbitrator found that the cause of the trouble originated in insufficient technical knowledge, lack of requisite technical experience and inadequate competent supervision on the part of the technical officers concerned for Finchley Borough Council, excluding Mr. Reginald Alfred Horsman. He also found that the first and second respondents had not failed in their respective contracts. He directed that the council pay the contractors £4,000, the agreed outstanding balance, and an agreed sum for extras of £1,548; and that the contractors pay the sub-contractors the agreed outstanding sum of £587. The arbitrator also ruled that the council should pay the costs of the whole arbitration.

Mr. Gardner said the council sought to have the award set aside on the grounds that: (1) the award dealt with matters which had not been referred to the arbitrator; (2) that the award purported to be made between the council and the Helical Bar and Engineering Co., which was not a party to the council's arbitration; (3) that the arbitrator went outside the terms of reference in directing the council to pay the costs of the Helical Bar and Engineering Co.; (4) that the award found that the respondents had not failed in their contract, whereas the hearing was conducted on the basis that the sub-contractors for whose work Messrs. Matthew James were responsible, admitted the breach of contract complained of; (5) that there was an error of law on the face of the award in that the arbitrator found there was a duty on the part of the council to provide competent technical officers to supervise the work.

Mr. Gardner said: "If the award stands a number of council employees would be in danger of dismissal. The council cannot disregard the award whether they agree with it or not. It would not be fair if the award was to go back to the arbitrator."

For Messrs. Matthew James, Mr. M. Easton submitted that even if the arbitrator had erred on the question of costs, that was not a ground for setting aside the award, but only for remitting it. His clients had submitted before the arbitrator that the defects were not a breach of contract on their part, but were due to faulty design of the building. The complaint was that the builders had failed to leave expansion joints in the roof, but his clients said that under their contract they were not required to do so, and in any event had been instructed by the clerk of works to lay a thick screed right over the expansion joints which the sub-contractors left. The sub-contractors had admitted failing to leave expansion joints round four chimney stacks, but at no time had there been any admission as to a breach of contract by his clients.

Mr. N. Faulks, for the Helical Bar and Engineering Co., also submitted that the award was sound and should stand.

JUDGMENT

Giving judgment, his lordship said that when the work on the flats had been completed, defects in the roof were found and the council withheld some of the money due to the builder. The builder had a separate contract with the Helical Bar and Engineering Co., sub-contractors, whom he would describe by the neutral term "third parties."

The dispute between the council and the builders went to arbitration, and similar proceedings were started in the dispute between the builders and the third parties. The arbitrations took place at the same hearing, and the arbitrator was reminded that there were two separate arbitrations.

His lordship said he did not think it mattered very much whether the award was regarded as two awards or one because the pith of the matter was in the arbitrator's direction as to costs. The council had been ordered to pay the costs of the Helical Bar and Engineering Co., who were not parties to their arbitration. "In my judgment the arbitrator had no power to do that under any circumstances, and that part of the award cannot stand," he held.

His lordship said he had to decide whether to remit the award to the arbitrator, or set it aside. Referring to the arbitrator's finding concerning insufficient technical knowledge and experience, and lack of competent supervision by the council's officers, the judge said it was agreed that the contract did not call for the provision of any technical knowledge by the council, nor did it require their servants to have any degree of technical experience or that any supervision should be exercised.

Accordingly these findings would appear to be be wholly immaterial to the matter which the arbitrator had to decide, namely, whether there was a breach of contract or not. The judge added: "The setting out of these matters which appear to be immaterial satisfied me that, unless some explanation can be given, the arbitrator has misdirected himself." It was not desirable in all the circumstances that the matter should go back to the same arbitrator. "He seems to have formed a firm view about some of the council's officers, and I do not think the case should go back before him."

The award to the builders against the council, and the award to the sub-contractors against the builders were both set aside. The council were awarded costs.

RIBA

Notes from Council Minutes

THE following notes are taken from the minutes of the RIBA Council meeting held on November 1:—

APPOINTMENTS

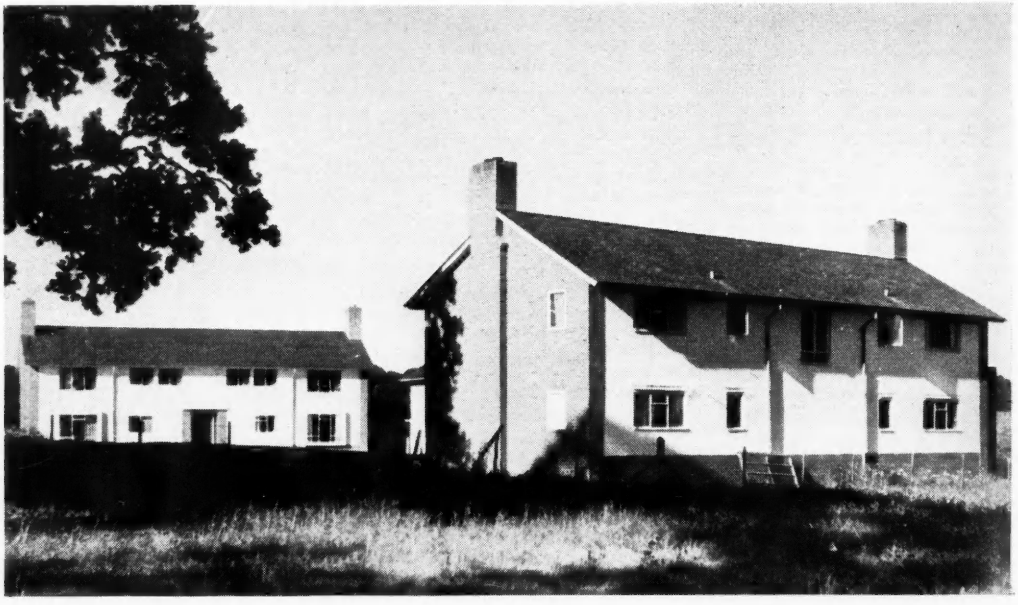
British Standards Institution: Conference to decide upon Preparation of a British Standard for Corrugated Translucent Sheets: RIBA Representative. F. H. Heaven (A).

Direct Election to the Fellowship: On the recommendation of the Royal Australian Institute of Architects, the following were elected to the Fellowship under the provisions of the Supplemental Charter of 1925, Section IV, Clause 4: Wilfred Thomas Haslam, FRAIA, past president, South Australian Institute of Architects; Keith Mills Yelland, FRAIA, past president, South Australian Institute of Architects; James Musgrave Collin, FRAIA, past president, Queensland Chapter, RAIA; Bertrand Lucien Dechaineux, FRAIA, past president, Tasmanian Chapter, RAIA.

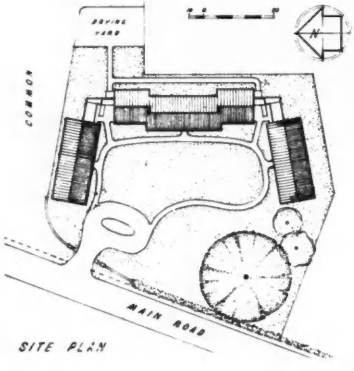
Conference on Training in the Building Industry: Arising from the report of the Joint Committee on Architectural Education, arrangements have been made for a one-day conference on Training to be held at the RIBA on January 31 next. Detailed arrangements have been left in the hands of the Joint Committee of Architects, Quantity Surveyors and Builders. The chair will be taken by Mr. Harvey Frost, president, NFBTE. The speakers will be Mr. D. H. McMorran, ARA (F), Mr. W. James FRICS, and Mr. David Woodbine Parish, for the NFBTE. Invitations are being sent to a number of the principal organisations interested in the building industry to nominate representatives to attend the conference.

Amendment to Rules: The Berks, Bucks and Oxon Architectural Association: Approval was given to an application by the Berks, Bucks and Oxon Architectural Association for an amendment to their Rule 5A dealing with the procedure for the nomination and election of officers and executive committees of branches.

Proposed Standard Form of Tender for Nominated Suppliers: Approval was given to the draft of a proposed form of tender for nominated suppliers which is to be issued as a standard document. The form has already received the approval of the Royal Institution of Chartered Surveyors and the National Federation of Building Trades Employers.



View from south.

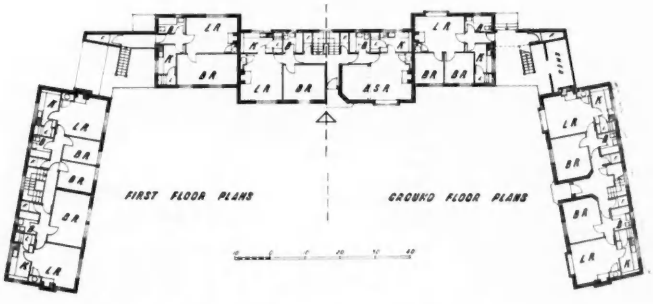


SITE PLAN

A HOUSING SCHEME IN KENT for the Shipbourne Housing Trust

KENNETH G. MILLER, DipArch, ARIBA, Architect

ALLNATT (BATTLE), LTD., Builders



Half plans. Below : View of central block.

THIS scheme of flats for the Shipbourne Housing Trust (whose chairman is Mr. Peter Cazalet and hon. secretary Mr. P. Gilchrist Thompson) consists of 16 flats ranging in area from 383 to 470 sq. ft. Construction is cavity brickwork on foundations 4 ft. deep on average, roofs being Canadian cedar shingles. Ground floors are covered with thermoplastic tiles on thermal insulating sub-floors. All flats, except the two bedsitting-rooms, have solid fuel combination cookers. The final building cost was £16,463, which included a small sewage disposal works, entrance walls, etc. The building work was ably managed by Mr. J. F. Armitage, and Messrs. Stoner and Roper acted as quantity surveyors in a consultative capacity, bills being not supplied, as the contract price, which remained hardly changed, was negotiated. The flats were opened by Sir David Eccles, KCVO, then Minister of Works.

News of the Week

TRAINING FOR BUILDING

ARISING from the report of the Joint Committee on Architectural Education, arrangements have been made for a one-day Conference on Training to be held at the RIBA on January 31 next. Detailed arrangements have been left in the hands of the Joint Committee of Architects, Quantity Surveyors and Builders. The chair will be taken by Mr. Harvey Frost, OBE, President of the NFBTE. The speakers will be Mr. D. H. McMorran, ARA, FRIBA, Mr. W. James, FRICS, and Mr. David Woodbine Parish, FIOB, for the NFBTE.

Invitations are being sent to a number of the principal organisations interested in the building industry to nominate representatives to attend the Conference.

Among the organisations being invited to send representatives are: RIBA, RICS, NFBTE, NFBTO, the Board of Architectural Education, the Board of Building Education, the Institute of Builders, the Ministry of Education, the Ministry of Works, the Institution of Structural Engineers, the Association of Principals of Technical Institutions and the Association of Teachers at Technical Institutions. Invitations are also being sent individually to members of certain informal bodies interested in training in the building industry.

OXFORD RELIEF ROADS

TENTATIVE proposals by Oxford City Council to build traffic relief roads through Christ Church Meadow and the University Parks have been dropped. The general purposes committee, on October 31, heard a report and recommendations from the council's representatives who recently met Mr. Duncan Sandys, Minister of Housing and Local Government, on the subject of the city's traffic problems.

Recommendations for two new inner relief roads were adopted by 32 votes to 19. On Monday, November 7, after over five hours debate, these recommendations were adopted by Oxford City Council by 32 votes to 24. The proposals will now go forward to Mr. Sandys, as amendments to the Oxford development plan.

The northern inner relief road would run from St. Giles, through Museum-road, South Parks-road, across Merton and New College cricket grounds, then south-east to Marston-road and on eastwards to Headington Hill. The southern road would run from Abingdon-road, north of Eastwycke Farm, cross the Isis south of the University boat house, and then along Jack Daw-lane to Iffley-road.

WAGE CLAIM INCREASED TO 6d.

LEADERS of building workers' unions decided in London on Tuesday to increase their next wage claim from 4d. an hour to 6d. because of the expected effects of the supplementary Budget on the cost of living.

The decision to ask for a general increase of 4d. an hour was taken by the unions earlier this year in readiness for the annual review of wages by the National Joint Council next January. The Amalgamated Society of Woodworkers were foremost among the unions who called for reconsideration of the amount of the claim; they proposed a demand for 6d. The claim will be submitted in this form in the near future.

SLUM CLEARANCE

IT IS ESTIMATED that of the 12,935,177 permanent houses in England and Wales 847,112 are unfit, and it is proposed to demolish 375,484 of them in the first five years of slum clearance. Another 88,278 will be temporarily retained.

These figures are contained in a summary of returns and proposals submitted by local authorities under the Housing Repairs and Rents Act, 1954, published on Tuesday (Cmd. 9593, HMSO, 3s. 6d.).

RICS PRESIDENTIAL ADDRESS

AT THE first ordinary general meeting of the session to be held at the Royal Institution of Chartered Surveyors on Monday, November 14, at 5.30 p.m., the president, Mr. W. R. Brackett, OBE, will deliver his presidential address. Immediately prior to the meeting, the president, on behalf of members, will lay a wreath at the Institution War Memorials.

BARTLETT SCHOOL PRIZES

PRIZES for Measured Drawings for 1955, offered by *The Builder*, have been awarded as follows: Senior Prize, Miss Helen Penn; Junior Prize, E. R. Lane.

CARPENTERS' MASTER

IN the Lord Mayor's Procession as Master of the Worshipful Company of Carpenters was Mr. Geoffrey Ridley, OBE, FRIBA, who is in practice at Dover. Mr. Ridley is keenly interested in the theatre and last week was playing a leading part in the Dover Operatic and Dramatic Society's production of Shaw's "Arms and the Man," the play in which, playing the same part, he met his wife 35 years ago.

LCC SCHOOLS ARCHITECT

THE London County Council invite applications for the post of Schools Architect in the Architect's Department. Salary scale, £2,050—£100—£2,250. Applications are invited also for a Senior Architect (General Division), on a scale £1,175—£100—£2,075. Details advertised elsewhere in this issue.

CLAY INDUSTRIES POST

THE National Federation of Clay Industries invites applications for the newly created post of technical liaison officer. Duties will be concerned primarily with promoting the use of clay bricks and tiles, involving liaison with architects, engineers, local authorities and technical and other bodies. Minimum salary, £1,000 a year, plus expenses. Details advertised elsewhere in this issue.

PROFESSIONAL ANNOUNCEMENTS

MESSRS. MAX LOCK & PARTNERS, F/AA.RIBA, M/AMTPI, architects and town planning consultants, have moved their London offices from 7, Victoria-square, SW1, and are now at 109, Gt. Russell-street, WC1 (tel.: Museum 2193/4).

MR. PETER LAWRENCE, ARICS, chartered quantity surveyor, has moved his office from Twickenham to larger and more central accommodation at 26, The Broadway, Wimbledon (tel.: Wimbledon 2993). He has also opened a small branch office at 20, Gabriel's-hill, Maidstone.

BUILDING IN AFRICA

RICS President's Recent Tour

MR. W. R. BRACKETT, OBE, TD, FRICS, president of the Royal Institution of Chartered Surveyors, described some impressions of his recent nine weeks' tour of the Institution's branches in Uganda, Kenya, Tanganyika, Southern Rhodesia and South Africa, to a representative of *The Builder* on his return to this country on November 4. Mr. Brackett was accompanied on his tour by Mrs. Brackett and by Brigadier A. H. Killick, CBE, DSO, MC, secretary of the RICS.

Mr. Brackett said that he was very impressed by the amount of building activity in progress in the territories he visited. This has resulted in a great deal of work for quantity surveyors, who had expressed their need for further assistants. He pointed out that normally quantity surveyors went out to Africa in the Government service and in many cases later took up private practice.

The scope of the schemes for housing the African native in British East Africa, Southern Rhodesia and South Africa had greatly impressed Mr. Brackett. He felt that insufficient prominence had been given to these schemes in the British Press. Clever use, he pointed out, was made of local materials in constructing their simple dwellings, and he mentioned that he had seen in Mombasa excellent building blocks using coral as an aggregate.

Mr. Brackett stated that he thought there was not a very large market for prefabricated buildings in these regions as on the whole, owing to transport difficulties, they were too expensive for the natives and were not always suitable for the Europeans.

In addition to the volume of building of all kinds, Mr. Brackett was also extremely impressed by the height of the buildings in the central areas of the large towns. He said that new building was an economic proposition as rents in Africa were extremely high, and added that although construction was very active at the moment, it would expand even more rapidly in the future.

This is the first time that a president of the RICS has undertaken an official visit to branches in Africa, and the Institution reports that the visit has been outstandingly successful.

FROM "THE BUILDER" OF 1855

Saturday, November 10, 1855

THE DWELLINGS OF THE PEOPLE.—At the West Brompton Mutual Improvement Society, on Friday, the 2nd inst., a lecture on "The Homes of the People" was delivered by Mr. G. Godwin.* At the close of it, Mr. Godrich, who was in the chair, said, in moving a vote of thanks to the lecturer, that the most distressing of the details given by Mr. Godwin could be paralleled in the Royal parish of Kensington, in which they were; the condition of Jennings' buildings, the Potteries, and Hooper's-court, was a disgrace. . . .

* Mr. George Godwin was, of course, the third Editor of *The Builder*.

BOOKS

ESTIMATING FOR BUILDING AND PUBLIC WORKS (12th Edition). By the late B. Price Davies, FRICS, FRIBA, assisted by his two Sons. (Cardiff: The Building Estimator Publications, Western Mail and Echo, Ltd.) Price 42s. post free.

THIS 12th edition of Mr. Price Davies' book with the accumulated experience of 32 years demonstrates the qualification of the author to produce a reference of technical data and information without equal. It is intended to be for the assistance and service of surveyors, building and engineering contractors, merchants and all others concerned in the estimating and pricing of building and public works, the ordering of materials and the compilation of works programmes.

In its 522 pages are found additions and amendments to previous editions which have closely followed the technical changes since the last edition. It is interesting to note that in the first issue in 1922, 116 pages were included. It was published at a time of extreme fluctuation of prices prevailing in the immediate post-war years of 1919-1922. Fluctuating prices have been an accepted part of the building trade since that time and a notable feature of the system of estimating adopted by Mr. Price Davies with its range of basic data is that it is unaffected by the rise and fall of money prices.

Many of the changes incorporated in the 12th edition are made to conform to the fourth edition of the Standard Method of Measurement for Building Works. Much detailed thought and work has been devoted to this revised edition, and it is worthy of note that whilst the 11th edition was finished in 1945 and was produced at the time of the end of the war with Germany, the money costs shown are those of 1939. In this the 12th edition they are based on 1953 prices, and information is, therefore, available of comparisons of 14 years between pre-war and post-war prices.

Many features are retained, and in particular the registration of readers is particularly helpful, providing the opportunity of communicating further information to readers as available. There are also additional items introduced. In particular, section 15 deals with the general principles and preliminaries included in the fourth edition of the Standard Method of Measurement, and provides easy reference to the variations incorporated therein. The National Holidays with Pay Scheme is dealt with in section 10 and an analysis of the additional cost of building work due to the operation of this innovation. The blank pages included for notes are, happily, retained and should prove useful in recording data from actual experience of building costs and should, therefore, stimulate the setting up of estimators' own records in the one volume.

There are certain omissions. One, notably emphasising the inevitable march of time, is that no longer do we read in the costs of transport the reference to Horse and Cart Driver. Motor transport alone is referred to. In the pages dealing with the relative prices for slates the prices are now confined to 1,000 slates and no reference is included of the previous mille of 1,200. No effort has been spared to provide a book of easy reference, the items in each table being numbered and the columns lettered, thus facilitating reference to other tables.

Criticism should not be made of too much information being included, but section 7 dealing with decimal fractions seems somewhat superfluous. The reader of a book of such concise technical data should be aware of these primary mathematical calculations long before opening its first pages. Whilst most calculations are now dealt with in measures and units of feet cube and yards cube, many readers of mature age would welcome a comparison of the units of bushels in many of the sections. Nothing, however, can detract from this being regarded as an authoritative work and one which has become generally known as the final word in any dispute concerning cost of building work. No finer tribute could be paid. G. T. B.

MODERN FURNITURE AND FITTINGS. By John Hooper, OBE, and Rodney Hooper, MSIA. Pp. 327, with 1,700 illustrations, including over 100 photographs and scale working drawings. (London: Batsford.) Price, 50s.

THIS is a revised edition of the book first published in 1948. The field covered is exceptionally wide, ranging from domestic cabinet work of the best type to panelling and fitments for public buildings, church and library interior fittings and showcases for museums, exhibitions and shops.

Not only modern designs are dealt with: the use of present-day materials such as laminboard and of modern woodworking techniques in the production of period-style furniture and fittings is also an important feature of the work, which is invaluable to craftsmen, designers and architects.

HOUSING PROGRESS REPORTS

Figures for Third Quarter, 1955

THE Housing Progress Reports presented to Parliament as White Papers* by the Minister of Housing and Local Government and the Secretary of State for Scotland, show that the number of permanent houses completed in Great Britain during September was 27,978, compared with 31,413 in September, 1954.

In the first nine months of 1955, 233,335 permanent houses were completed compared with 256,110 in the same period of 1954.

Detailed figures at the end of September were:

PERMANENT HOUSES AND FLATS COMPLETED
(including war-destroyed dwellings rebuilt)

	Great Britain			England and Wales		
	Post-war total to Sept. 30, 1955	*Completions in September*	*Completions in 1955 to September 30*	*Post-war total to Sept. 30, 1955*	*Completions in September*	*Completions in 1955 to September 30*
Local authorities†	1,617,945	15,887	143,972	1,392,120	13,217	122,143
Private builders	448,927	11,010	80,323	432,741	10,502	77,944
Housing associations ...	36,382	263	3,786	35,348	231	3,705
Government departments ...	52,736	818	5,254	48,006	549	4,741
Total...	2,155,990	27,978	233,335	1,908,215	24,499	208,533

PERMANENT HOUSES AND FLATS UNDER CONSTRUCTION
(including war-destroyed dwellings)

	Great Britain			England and Wales		
	Under construction at Sept. 30, 1955	*Under construction at June 30, 1955*	*Under construction at March 31, 1955*	*Under construction at Sept. 30, 1955*	*Under construction at June 30, 1955*	*Under construction at March 31, 1955*
Local authorities†	191,046	186,778	179,181	157,717	154,608	147,078
Private builders	93,473	88,940	78,801	89,986	86,090	75,978
Housing associations ...	2,983	3,028	3,462	2,874	2,925	3,333
Government departments ...	8,625	8,914	8,685	7,855	7,930	7,678
Total...	296,127	287,660	270,129	258,432	251,553	234,067

* Cmd. 9604 Housing Return for England and Wales. HMSO, price 1s. 3d.
* Cmd. 9603 Housing Return for Scotland. HMSO, price 1s.
† In Scotland includes houses built or being built by Scottish Special Housing Association.

HOUSING LABOUR FORCE

The following are provisional estimates of the number of operatives aged 15 and over, employed by building and civil engineering contractors on the construction of new permanent houses and the preparation of housing sites in England and Wales at the dates stated.

January 31, 1955	*April* 30, 1955	*July* 31, 1955
307,000	304,000	300,000

The figures for 1955 are not comparable with the previous series. It is no longer practicable, now that building controls have ceased, to collect figures from all the firms undertaking contracts if their major activity lies in other fields. The present series covers a wider age group and includes some off-site workers.

The figures shown above do not include the number of building and civil engineering workers directly employed by local authorities. The number of such workers in England and Wales was 16,906 in September, 1955.

The number of operatives engaged on repair and maintenance of existing houses (including conversions, extensions and alterations) in England and Wales was estimated to be 142,000 in July, 1955. The notes above on the changes in coverage apply also to this figure.

HOUSING SUBSIDIES BILL

The Main Purposes

BELOW are given the main provisions of the Housing Subsidies Bill, which was introduced into Parliament and read a first time on November 1. The Bill applies to England and Wales only. The main purposes are:

(*a*) To reduce the basic Exchequer subsidy on houses built for general needs from the present level of £22 1s. 0d. to £10, and to make consequential adjustments in the subsidies for flats. (Clause 3 (2).)

(*b*) To maintain at the present rate (£22 1s. 0d.) the subsidy on houses built for slum clearance, etc. (Clause 3 (3).)

(*c*) To provide a slightly increased rate of subsidy (£24) for houses built to facilitate necessary movements of population (i.e., New Town or town expansion schemes to deal with overspill, or housing schemes to assist the urgent needs of industry). (Clause 3 (3).)

(*d*) To enable the Minister by Order to abolish or reduce the rates of subsidy payable on houses approved after the date of the Order. (Clause 2.)

(*e*) To relieve local authorities of their obligation to make contributions out of the rates towards the cost of housing. (Clause 8.)

(*f*) To enable the Minister to recover from local authorities of congested cities half of any payment he makes (in lieu of rate contributions) to the authorities of New Towns or expanded towns towards the cost of housing overspill population. (Clause 9.)

(*g*) To give the Minister a limited discretionary power to increase the basic subsidies in exceptional cases where necessary housing accommodation could not be provided without imposing an unreasonably heavy rate burden or necessitating the charge of unreasonably high rents. (Clause 5.)

(*h*) To maintain on a revised basis the existing subsidy for expensive sites (Clause 6), and also the existing special subsidies for agricultural dwellings, houses built in areas subject to subsidence, etc. (Clause 4.)

I. SUBSIDIES FOR DWELLINGS (OTHER THAN FLATS IN BLOCKS OF 4 OR MORE STOREYS)

Purpose	Subsidy
(1) Provided by local authorities for general needs	£10 per annum
(2) Provided by local authorities in replacement of slum dwellings or dwellings in areas redeveloped under Part III of the Housing Act, 1936. (3) Provided by local authorities in replacement of camps or other unsatisfactory temporary housing accommodation.	£22 1s. 0d. per annum
(4) Provided by local authorities of expanded towns under the Town Development Act, 1952. (5) Provided by local authorities for persons coming into their areas to meet the urgent needs of industry. (6) Provided by local authorities of congested or over-populated areas by large scale development in other areas. (7) Provided by development corporations of new towns.	£24 per annum

II. SUBSIDIES FOR FLATS

Purpose	Subsidy		
	4-storeys	5-storeys	6-storeys or more
(1) Provided by local authorities for general needs	£20 per annum	£26 per annum	*£38 per annum
(2) Provided by local authorities in replacement of slum dwellings or dwellings in areas redeveloped under Part III of the Housing Act, 1936. (3) Provided by local authorities in replacement of camps and other unsatisfactory temporary housing accommodation. (4) Provided by local authorities of expanded towns under the Town Development Act, 1952 (5) Provided by local authorities for persons coming into their areas to meet the urgent needs of industry. (6) Provided by local authorities of congested or over-populated areas by large scale development in other areas. (7) Provided by development corporations of new towns.	£32 per annum	£38 per annum	*£50 per annum

*The subsidy is increased by £1 15s. 0d. per flat for each storey in excess of six.

III. SUBSIDY FOR EXPENSIVE SITES

Cost of site as developed	Subsidy
Exceeding £4,000 per acre	£60 per acre
For each £1,000 or part of £1,000 in excess of £5,000 per acre	An additional £34 per acre

IN PARLIAMENT

[*From our own Parliamentary Correspondent*]

WHAT may well become the most controversial measure of the Government's current legislative programme—the Housing Subsidies Bill, by which they seek to operate the new policy for local authority house subsidies outlined by Mr. Duncan Sandys, Minister of Housing and Local Government, on October 27, was presented to Parliament on November 1.

There is little doubt that this will provide a bitter political battle, and some indication of the intense feeling it created among Opposition members can be gained from the manner in which they greeted Mr. Sandys's statement. As he sat down there was an outburst of booing from Labour members, a type of demonstration that is rarely encountered at Westminster.

By the Bill the Government seek:—

1. To reduce the basic Exchequer subsidy for dwellings provided by local authorities for general needs from £22 1s. a year to £10, with a view to its early abolition.

2. To introduce a new subsidy of £22 1s. a year for dwellings provided by local authorities to replace slum dwellings or dwellings in redevelopment areas or camps or other unsatisfactory temporary housing accommodation.

3. To introduce a new Exchequer subsidy of £24 a year for houses provided by local authorities of expanded towns under the Town Development Act, 1952, for such houses provided to meet the needs of people coming to their areas to meet the urgent needs of industry or provided to deal with congested or over-populated areas, or such houses provided by development corporations of new towns.*

A new proposal is a clause giving the Minister the right to recover from local authorities of congested cities half of any special payment he makes in lieu of rate contribution to the authorities of the new towns or expanded towns towards the cost of housing overspill population. Another clause relieves local authorities of the right to make contributions out of the rates towards the cost of housing. A separate subsidy for expensive sites is provided on a different basis from that under which site subsidies are payable under existing enactments. The new formula is £60 an acre where the cost of site as developed exceeds £4,000 an acre, and an additional £34 an acre for each £1,000 or part of £1,000 in excess of £5,000 an acre.

Based on certain assumptions, the Government believe that in the first year after the subsidy for general needs is abolished, and in each of the following years until the need for large-scale housing is satisfied, the broad average increase of council house rents by local authorities in England and Wales will be about 8d. a week.

The assumptions are that council house building continues at its present rate, that interest rates remain unchanged, and that about half the local authority building programme will be to meet overspill and slum clearance, and thus attract a subsidy. No account is taken of differential rents, and there is also an assumption that there will

* The proposals made in the Bill are summarised on this page.

be some contribution from the rates to housing finance. The amount of the increase in rents would vary according to the size of the local authority.

Five years is the period in which the Government believe that except for slum clearance the need for large-scale building programmes will have disappeared, and it is thought that local authorities in England and Wales will soon be producing about 80,000 houses to meet the needs of slum clearance.

MINISTRY'S ANNOUNCEMENTS

Further details relating to the Housing Subsidies Bill have been announced by the Ministry of Housing and Local Government in two circulars. In Circular No. 60/55 the Ministry states that, subject to Parliament's decision, the new rates of subsidy will apply to all dwellings, in respect of which tenders are approved by the local authority on or after November 3 (other than tenders already submitted to the Minister in advance of formal approval by the authority).

Circular No. 61/55 states that the Minister has decided to bring to an end the present system of housing allocations. Local authorities will, therefore, now be free to determine, according to their judgment of local needs, the number of council houses to build in their areas. The Minister is sure, the circular adds, that in formulating their future programmes, council will bear in mind the importance of not overloading the building industry.

The Clean Air Bill

THERE was general commendation in the Commons for the Government's action in introducing the Clean Air Bill to carry out the recommendations of the Beaver Committee to remedy pollution of the air by smoke and dust, but there was equally general condemnation of many of the methods by which they sought to achieve their aim.

The Bill, which was being discussed on second reading on November 3, was described as "puny," "a mouse," "a miserable hypocrite," "ineffective," "unworthy," "ill drafted" and "premature," while MR. GERALD NABARRO, whose private Bill earlier this year forced the Government to speedier action in this matter, said that he saw "the hand of the Federation of British Industries writ large between the lines."

"I ought to know," Mr. Nabarro added, "I presented a much tougher Bill than this last February, and members of the Federation of British Industries tried to dissuade me." When dealing with the seven-year period of grace in which to show it had been impracticable to effect the improvements which might be considered a defence —a proposal that was vigorously criticised— he said that the correct period should be three years, and that the members of the Federation of British Industries who were industrialists had "been responsible for persuading the Minister to put three years up to seven."

The feeling was that the provisions of the Bill offered too many loopho'es—"a mesh through which the indifferent and incompetent could escape," was how DR. EDITH SUMMERSKILL, the chief Opposition speaker, put it—and wide escape routes. This was not shared by MR. WILLIAM DEEDES, Parliamentary Secretary to the Ministry of Housing and Local Government, who introduced the Bill, although he was prepared to consider detailed discussion of any provisions which would tighten the Bill, which proposed among other things the setting up of a Clean Air Council.

Having heard a veritable torrent of criticism, MR. DUNCAN SANDYS, Minister of Housing and Local Government, said that he did not want, any more than any other member, "watered down clean air." The general desire was for an effective and workable measure which would achieve rapid results. The Government's intention was to make the Bill as effective, tight and strong as possible consistent with what was practicable. With that in mind it would be impossible to discuss in committee whether they could go farther than the Bill proposed.

The Bill was read a second time.

Other Business

SLUM CLEARANCE PROGRESS

WING COMMANDER BULLUS asked the Minister of Housing and Local Government if he would make a statement about the progress of slum clearance.

MR. SANDYS, replying on October 25, said: All but 32 of the 1,466 local authorities in England and Wales have now submitted to me their proposals for slum clearance. I propose to present a White Paper soon showing each authority's estimate of the number of unfit houses in their area and their programmes of work during the next five years.

WING COMMANDER BULLUS asked for an assurance that there would be no slackening in the pace of this work.

MR. SANDYS: On the contrary, I want to speed it up!

IMPROVEMENT GRANTS

On October 25 MR. DONNELLY asked the Minister of Housing and Local Government for the number and total values of grants made under the Housing Repairs and Rents Act, to private property owners in respect of improvements to old houses and to local authorities for slum properties, respectively.

MR. DEEDES (who replied): Up to August 31 last 39,000 improvement grants had been made to the owners of private houses, 29,000 of these since the passing of the Housing Act, 1954. Figures are not yet available for the amount of grant paid, since some claims from local authorities for the Exchequer portion of the grant are still outstanding. Local authorities have indicated that they intend to patch about 90,000 houses during the next five years. The City of Birmingham have been informed that approximately 25,000 houses will be accepted for patching grant. No claims for grant have yet been made.

ST. JAMES'S THEATRE

On October 25 MR. KENNETH ROBINSON asked the Minister of Housing and Local Government if the fears which had been repeated about the future of the St. James's Theatre were groundless.

MR. SANDYS: To be quite frank, that slipped through the net before we got to this point.

SIR HUMFREY GALE'S POST

On October 25 MR. DESMOND DONNELLY asked the Minister of Housing and Local Government if he would state the duties and terms of reference of Sir Humfrey Gale's appointment in his department.

MR. SANDYS: I have appointed Sir Humfrey Gale to advise and assist me in securing speedier progress in the promotion of schemes under the Town Development Act for relieving the congestion of population in the large cities. Sir Humfrey Gale will be available to assist in negotiations between the local authorities of the cities concerned and the authorities of the "receiving" districts.

MR. DONNELLY, while welcoming the appointment, asked the Minister whether he was aware that much of the Town Development Act depended on adequate subsidies for smaller local authorities in the receiving areas. He also asked for an assurance that nothing would be done in the future to prejudice smaller local authorities in those receiving areas.

MR. SANDYS: I am very happy to give that assurance.

TOWN DEVELOPMENT, SCOTLAND

MR. MCINNES asked the Secretary of State for Scotland what representations he had received from Scottish local authorities in favour of the introduction of a Town Development Act in Scotland.

MR. NIXON BROWNE, Under Secretary, Scottish Office, replying on November 1, stated: None, but the Secretary of State has suggested to Glasgow Corporation and the Clyde Valley Planning Advisory Committee that such legislation is essential to assist in solving the city's overspill problem. Discussions are proceeding with the local authorities who might be willing to take overspill; and the committee have undertaken to furnish their views on the lines the legislation might take.

MR. BROWNE, in reply to MR. MCINNES, said that, even for Glasgow, town development was not possible without legislation. Without it no grant could be made to an importing authority for sewerage: local authorities could not make contributions one to another and one local authority could not act as an agent for another. Legislation in one form or another was essential. In the forthcoming review of subsidies in Scotland the special needs of overspill and transferred industrial population like those in England would be taken into account.

FACTORY BUILDING, SCOTLAND

MR. BROWNE, in reply to a question by MR. WOODBURN, said that, and this was an important point, Cumbernauld was in the Development Area, and it would be possible for the Board of Trade under the provisions of the Distribution of Industry Act to arrange for the Scottish Industrial Estates Company to build factories for approved industrial projects. The board's New Town Development Corporation, as and when it was set up, would it was hoped assist in securing the transfer of industry from Glasgow. Such action must await the approval of the plan for the development of the new town.

NEW TOWNS, SCOTLAND

MR. HOY asked the Secretary of State for Scotland if he was aware that interest

charges on each house built by the new town development corporations costing £1,650 have been increased by £17 13s. a year, equal to an increase in rent of 7s. 6d. a week, because of the Government's action in raising the interest charges from 3¾ per cent. to 5 per cent.; and what action he intended taking to reduce this increase in the cost of living to the tenants.

MR. NIXON BROWNE: The answer to the first part of the Question is, yes. As for the second part, the levels of subsidies for houses in new towns in Scotland will be dealt with in the forthcoming review of Scottish housing subsidies.

WAR OFFICE BUILDING

WING-CMDR. BULLUS asked the Secretary of State for War if he would give details of his plans for the building and reconstruction of Army barracks, hospitals, workshops, and schoolrooms, throughout Britain.

MR. FITZROY MACLEAN, Under Secretary War Office, stated in a written reply: This building and reconstruction will be spread over about 20 years and will be affected by the money available and changing requirements. It is not possible to publish a firm detailed programme, but I will try to answer any questions about specific items.

FIRM PRICE TENDERING

CAPTAIN DUNCAN asked the Prime Minister whether he had now received replies from the English Government departments concerned to his inquiries about firm price tendering for government and local authority contracts in the building trades, with particular reference to plumbers.

SIR ANTHONY EDEN: All Government contracting departments agree that it is desirable to return to fixed price tendering in building contracts as soon as possible. and the Minister of Works is considering what steps can be taken to this end.

IAAS

Wealden Branch Elections

AT the annual general meeting of the Wealden Branch of the IAAS, Mr. J. A. MacIntyre was elected chairman, and Mr. C. J. Drinkwater and Mr. J. T. Martin were unanimously re-elected hon. secretary and hon. treasurer respectively.

EASTERN FEDERATION

Benefits of Membership Explained: Itinerary of Visit to Spain

THE Eastern Federation of Building Trades' Employers has issued a "Statement of Benefits of Membership" from its headquarters at 95, Tenison-road, Cambridge. The leaflet groups the benefits of membership under eight sub-divisions: Personal Services; Contract and Legal Problems; Industrial Relations; Education and Training; Insurance; Housebuilding; Research and New Methods; and Membership and Representation. In addition, the leaflet gives a useful list of publications, some of which are free to members.

THE Federation has now issued a provisional itinerary of next year's visit to Spain. The party will assemble at Waterloo Air Terminal at 12.40 p.m. on Monday, May 14, and will arrive back at the same place at 9 p.m. on Sunday, May 27. The estimated inclusive cost is £85 per head.

IMPROVEMENT AND CONVERSION GRANTS

Making Scheme More Widely Known

WHEN the president of the National Federation of Building Trades Employers, MR. HARVEY G. FROST, OBE, spoke at Trowbridge at the half-yearly meeting of the South-Western Federation earlier in the year, he promised the Federation's full support for the Government's programme for the improvement and conversion of old houses and the clearance of slums. "Both are important," he said, "but the first particularly so because improvement works prevent houses from deteriorating to the point at which they become slums. Many property owners are not fully aware of the financial help they can get from public funds and I hope that members of the Federation will, whenever possible, bring the facts to their notice."

Subsequently Mr. Duncan Sandys wrote to the National president expressing his thanks for these references to the scheme, and pointing out that substantial grants are available to help meet the cost of improvement works. The Minister added that any further help the Federation could give in making these grants more widely known would be most welcome.

Accordingly Mr. Frost has now sent a personal letter to every member of the NFBTE throughout the country stating: "I feel sure that you will agree with me that we shall be helping the owners and occupiers of houses, as well as ourselves as builders, by doing everything we can to popularise the scheme, and that I was therefore right in assuring the Minister that he could rely on our wholehearted co-operation."

A copy of the Ministry's pamphlet "Grants for Improvements and Conversion" is also being sent to each member of the NFBTE.

NOTTINGHAM BUILDERS' ANNUAL DINNER

County Architect's Views on Public Tendering

SPEAKING at the annual dinner of the Nottingham and District Association of Building Trades Employers, in Nottingham, on November 1, the president, MR. S. R. PIGGIN, who was in the chair, said it was essential in the planning of Nottingham that the character of the city be retained and not destroyed. At the same time he considered the city fathers could well improve the entrance to the city from the south side over the Trent Bridge as the main roads from Trent Bridge were both flanked by very poor property, which, in his opinion, should be redeveloped at a very early date.

MR. D. E. E. GIBSON, CBE, ARIBA, the County Architect, referred to the problems facing the industry at the present time. The biggest problem in his view was that more and more buildings were required with a more or less stationary building force available, and in addition, in these modern times the demands of clients were much higher than in pre-war times, in that modern buildings were becoming much more specialised, demanding up-to-date methods of construction such as the use of pre-stressed concrete, etc. The professions and the industry were continually being faced with the problem of producing the right building to suit the owner at the right time and more important still at the right price.

Mr. Gibson added that, in his opinion, the industry and the building owners would require to look more closely in the future at our present ideas of public tendering, and he was confident a considerable saving in cost of construction could be achieved by bringing in the builder at a much earlier stage—in fact, before preliminary plans were prepared by the architect. Eventually it might well be that the architect and the builder would form one integral team to plan the building to suit particular clients and carry out the project without calling for individual tenders on the present basis.

INDUSTRIAL BUILDING

High Level of Approvals Continues

NEW INDUSTRIAL BUILDINGS amounting, together with extensions, to 20.75m. sq. ft., received location approval in Great Britain during the third quarter of 1955, according to an article in the *Board of Trade Journal* of November 5. This was much less than the figures for either of the first two quarters of the year, and slightly less than the area approved in the third quarter of last year. Nevertheless, 20.75m. sq. ft. exceeds all other post-war quarterly figures except the three mentioned above.

The article states that the total area of schemes known to have been started in the second quarter of the year is 15.2m. sq. ft. This figure is incomplete, as it relates only to schemes for which progress information had reached the Board of Trade by the end of September. The area of all schemes started in this period is likely to be between 17m. and 18m. sq. ft. The increase in the total area of buildings started each quarter from mid-1954 onwards reflects the almost continuous increase in approvals throughout 1953, 1954 and the first half of 1955.

BREACHES OF SAFETY REGULATIONS

Bilston Builders Fined

A BILSTON firm were fined on November 1 for three offences against the building safety regulations. The firm were D. B. Evans (Wolverhampton), Ltd., of Baldwin-street, Bradley, Bilston. They pleaded guilty to using loose bricks to support a scaffold more than 2 ft. from the ground, failing to provide a guard rail and toe boards on a working platform more than 6 ft. 6 in. from the ground, and failing to fix securely a ladder used to gain access to the scaffolding.

Mr. L. H. R. Abbott, defending, pointed out that the company employed men on piecework, and the idea of these workmen was to do as much work as possible, and they were inclined to neglect the precautions. The firm provided the correct equipment and arranged for their sites to be inspected. He agreed that the firm had received several warnings about safety regulations.

The company were fined £5 on each of the three charges, with £4 costs.

PLANNED ILLUMINATION

ELMA Lighting Conference

A PAPER entitled "Planning to Achieve a Desired Lighting Effect" was delivered by MR. J. M. WALDRAM, BSc, AMIEE, FIES, on October 27, as the second paper in a short series of conferences for architects on electric lighting, arranged by the Lighting Service Bureau of the Electric Lamp Manufacturers' Association and held at the Bureau, 2, Savoy Hill, Strand, WC2.

The chair was taken by MR. C. J. W. SCOTT, a member of the council of ELMA, who said that he wished to take this opportunity of paying tribute to Sir Howard Robertson, ARA, PP.RIBA, who would be opening the discussion following the lecture. He said that the first series of lighting conferences for architects had been held in 1932 and from the beginning Sir Howard had played a large part in ensuring their success. He had been on the original joint committee of the RIBA and ELMA and he had always been an invaluable source of guidance and encouragement.

The following extracts are taken from Mr. Waldram's paper:—

Customarily, the problem has been attacked by starting with the lighting equipment and working out its effect, though with little idea what effects were desirable. If the answer was obviously wrong, we started again. But with the new method we start at the other end, with a statement of what we want to achieve, and then work backwards to find what light we must release, and where it must be released from to obtain these effects. At first sight it is not a promising approach, but it is really much the simpler way.

Before explaining how it can be done, there are three points I want to make. The first is that the problem of lighting has changed during the last few years, and is no longer the one that faced us at the beginning of illuminating engineering. Then we were concerned with finding enough light; now we can nearly always afford to have enough, and the question is rather what to do with it.

DIVISION OF FUNCTION

The second point follows from the first. In any building the architect designs a work of art within a framework set by engineers, who measure the limits of the problem and make sure that the building is safe and habitable. In lighting, which is part of architecture, there should be the same division of function of the engineer and architect. The engineer can make the frame, but an artist must paint the picture. Clearly, if lighting, architecture, decorations and furniture are all to be incorporated in one purposeful design this is something for the architect rather than the engineer.

The third point concerns the capacity of the eye to adapt itself to the light presented to it. Its response is radically different from that of a photometer, so there is no very close connection between what we measure and what we see. Those who use our installations have eyes, not photometers, and they experience sensations, not units of illumination or brightness. Any method of design which ignores the adaptation of the eye is therefore unrealistic.

With these three points in mind, we should go first to the architect to find out what we ought to aim at, and in particular: (1) What are the decorations to be?

Sir Howard Robertson, ARA, PP.RIBA, speaking in the discussion after the paper.

(2) What sort of modelling and flow of light is required? (3) What should be the pattern of light and shade, and where should the emphasis be? When these questions are answered, the engineer's functions are to avoid technical mistakes such as insufficient light or an uncomfortable result; to translate the architect's conception into engineering terms; and to design an installation which realises this conception.

If co-operation between engineer and architect is to succeed there must be some more understandable means of communication between the two professions than the engineer's present technical jargon and there are now three links which show promise. The first and simplest is the Munsell or other system by which the architect can indicate what colours he will use.

The second link concerns the modelling and flow of light. We have found methods of recording photometrically the conditions to produce known effects, and simple ways of expressing them, so that if a choice is made from a set of photographs it is possible to express it numerically; and it is fairly simple to calculate how to achieve that degree of modelling.

The third link is that we have prepared a scale of Apparent Brightness, which the architect can use in expressing the light and shade that he wants, which we can interpret, and which takes account of adaptation of the eye.

I have found architects most sympathetic to this approach and eager to explore its possibilities. It is a logical approach for it starts with a statement of aim and proceeds to the means for achieving it. It enables a project to be worked out on paper even for a building not yet built, with some assurance of the result and without experiment, which is costly and often misleading.

DISCUSSION

Opening the discussion following Mr. Waldram's paper, SIR HOWARD ROBERTSON said that he felt this new method of planning lighting presented a challenge to the architectural profession that must be accepted and that it further emphasised the need for team work. Not just team work amongst architects but amongst all the specialists concerned with modern building. Building to-day was becoming so complicated that it might well be that in the very earliest stages of any new project there should be a board of consultants if full advantage was to be taken of all the present age had to offer.

MR. WALTER GOODESMITH, FRIBA, said that he felt that Mr. Waldram had set the architect several posers and it looked as though greater attention would, in future, have to be paid to the third dimension when visualising interiors.

MR. CHARLES said that the lecturer put forward an entirely new idea of what the relationship between architect and lighting engineer should be. In the past, architects had had a great opportunity to hide behind figures to obscure what they did not understand but now, as long as the architect knew what he wanted, there appeared to be no reason why he should not have it.

MR. G. M. HOBBS, ARIBA, asked if there were names for the new method and scale.

In replying to the discussion, MR. WALDRAM said that he fully agreed with Sir Howard Robertson's suggestion of a board of consultants and hoped that something of the sort might become general practice.

The scale was that of apparent brightness and the new method was so far known as design appearance lighting. It was still too new to be in general use but he hoped it soon would be.

LABOUR SHORTAGE SLOWS HOUSING

Walsall's Difficulties

SHORTAGE of labour was blamed for slow housing progress at a meeting of the Walsall Town Council on October 24. Commenting on relations between builders and the local authority, CLLR. B. SMITH said: "The only way to achieve anything is by friendly co-operation all round." Last quarter, ALD. RICHARD DAVIES, housing committee chairman, reported only 74 houses were handed over at Walsall. To reach the recommended labour force more than 700 men would be needed.

At present 367 men were working on 481 houses under construction and more than 300 houses were out to contract. In an effort to speed housing, Ald. Davies reported that the Council is to be asked to approve a contract for 200 non-traditional houses to be completed within 12 months.

Programming of Traditional House-building

THE USE OF A REPEATING CYCLE

By H. F. Broughton and the late N. S. Pippard

THE building industry is becoming increasingly conscious of the need to reduce costs, and of the fact that, for this purpose, efficient organisation on building sites is essential. To this end, planning the contract must take place before building starts on the site. This can be done by preparing a programme which shows, at all stages, the labour, material and plant requirements.

Many builders and contractors have used programming as a means of increasing output, decreasing building time and of progressing the work. In fact, the value of planning building work is generally accepted, but it is unusual to find traditional house-building being carried out to a definite programme based on a repeating cycle. The builder engaged in this class of work usually considers that he, and his employees, are so familiar with their work that a formal programme is unnecessary, and may in fact be a hindrance. Evidence provided by a survey of productivity in house-building, however, suggests that this familiarity is not enough in many cases. The results of this survey* showed a very wide variation in labour expenditure for the building of similar houses on different sites, and even for similar houses built on the same site. The manhours required to build a house ranged from 1,500 to 4,500, while the building time of the average contract for 30 houses varied from 12 months to two and a half years.

A SURPRISING VARIATION

This wide variation in the rate of production is surprising, for it might reasonably have been expected that houses of the same size, of more or less similar design and specification, would bear a much closer relationship to each other, both in labour expenditure and building time. While many factors such as payment of incentives, the degree of subcontracting, etc., contribute to this wide variation, the survey results showed that one factor of crucial importance was the organisation of the work on the site. Organisation, to be effective, must begin in the office of the builder, and must embrace all the varied aspects of his business, so that each contract and site is considered in relation to the work of the firm as a whole. It is not, however, proposed to discuss here the subject of the builders' organisation in general but to consider the organisation of the work on site and to outline the principles of planning and programming production. The basic principles described later can be applied to most classes of new construction but the purpose of this article is to describe in particular their application to traditional house-building and illustrate a method of programming this class of work which has been used successfully by the Building Research Station. Before doing so, however, it might be useful to mention the objections which are often raised by contractors to preparing a comprehensive and detailed programme for house-building. They are:

(1) A prearranged detailed programme cannot be maintained in these times of uncertain labour and material supplies.

(2) Bad weather also will, inevitably, delay the work and disrupt such a programme.

(3) The cost of preparation will be an added charge to the contract.

(4) In many cases it is not possible to plan and programme a job in advance because all details of the work are seldom agreed before the builder is asked to start work on the site, and consequently, the programme can be seriously upset by subsequent variation orders.

There is ample evidence within the industry to prove that the first two objections can be overcome. The possible disruption of a programme by labour shortages or delays in materials deliveries can, to a great extent, be reduced by careful examination of the conditions likely to prevail, before preparing the programme. This does not mean that all interference can be avoided but it can be reduced to a tolerable amount. Furthermore, by allowing a reasonable degree of flexibility within the programme, even this can be taken care of, as can the effect of bad weather.

Experience again shows that the relatively small cost, in time and money of preparing a programme will almost certainly be more than offset by the reduction in building costs and building time which will result.

The fourth objection is, unfortunately, not without foundation and can be overcome only when all parties to a contract have a clearer understanding that the detailed planning of site production can save both time and money.

Objectives of a Programme

It is useful at the outset to define the aims of a working programme and the nature of the information it should provide. To be of maximum use the programme should:

(a) Show the most expeditious and economical method of carrying out the work, consistent with the available resources of the builder.

(b) Provide continuous productive work for all the operatives employed and reduce unproductive time to a minimum.

(c) Facilitate organisation and control of the work by prior examination of all its aspects and, by early consideration of possible difficulties, ensure smooth and continuous progress on the site.

(d) Provide accurate information relating to material quantities and essential delivery dates, the "build-up" of the labour force, the daily or weekly financial expenditure on labour and materials, and the quantity and capacity of the plant required.

(e) Provide at any time during the course of the contract a simple and rapid method of measuring the progress that has been made for the builder's information, the architect's periodical certificate, or the regular valuation of work in progress for accounting purposes.

(f) Contribute factual data for use in future estimating and planning.

Basic Principles

The basis of the method of programming used by the Station involves the recognition of the "key" operation. In every piece of work containing two or more operations, one operation will fix the time required to complete the work. In the same way, in each stage of the work, such as the shell or carcass of a building, one operation or a related group of operations will govern the production time of the whole stage. This operation can readily be determined by setting out the minimum times required to complete each operation within the stage, using the optimum size of gang or team for each. The operation taking the longest time is the key operation. In identifying the key operation allowance of course must be made for any time required for drying, setting or curing in such operations as concreting or plastering.

The most convenient stages in which to plan, particularly for house-building, are:

(1) Foundations and underbuilding.

(2) Shell to roofed-in stage.

(3) Finishings, services and equipment.

(4) Site works, drains, paths, fences.

In each of these stages there is a key operation which will control the speed of the work within that stage and the longest of these four key operations will be the "master" operation. The manning and speed of this master operation will determine and control the speed of all the other operations and will establish the time cycle of house production in the contract. This may be a two-day, three-day or four-day cycle or any period which will enable the work to be completed within the time allowed for the contract. This, or the labour available for manning the key operations, will establish the rate of production of the whole work.

When the building time and labour force for the master operation are fixed all the other operations must then be brought into phase. It may, of course, be possible to complete some of the operations in less than the cycle time for the stage, but no advantage in overall building time will ultimately be gained and the site time of each team or gang should, wherever practicable, be made the same as that of the key operation by adjustment of gang strength. For example, the time for cutting and fixing the carcassing timber (first floor and roof) in a house should be made the same as that for building the brickwork. Or again, the time for installing the plumbing, including pipework and sanitary fittings, should be the same as for plastering, otherwise one or other

* National Building Studies Special Report No. 21: Productivity in Housebuilding, Second Report. (HM Stationery Office, 1953.) 1s. 9d.

TABLE A
OPERATION SCHEDULE FOR PROGRAMME

Op. No.	Operation	Trade	No. of operatives	Manhours for two houses	
				Programme	Bonus Target
	STAGE 1—FOUNDATIONS				
1	Excavate trenches ...	Labourers ...	9*	49	59
2	Concrete trenches ...			20	24
3	Brickwork to d.p.c.	Bricklayers ...	3	32	38
		Labourers ...	2	21	25
4	Hardcore and Return fill	Labourers ...	9*	31	57
5	Concrete slab			23	28
				176	211
	* Nine labourers do all the work to items 1, 2, 4 and 5	Total Labour Force = 14 operatives			
	STAGE 2—SHELL				
1	Brickwork—1st lift	Bricklayers ...	8	112	134
		Labourers ...	4	56	67
2	Scaffolding	Scaffolders ...	2	128	154
3	Brickwork—2nd lift	Bricklayers ...	8	112	134
		Labourers ...	4	56	67
4	Prepare and fix first floor joists	Carpenters ...	2	24	29
5	Brickwork—3rd lift	Bricklayers ...	8	112	134
		Labourers ...	4	56	67
6	Brickwork—4th lift	Bricklayers ...	8	112	134
		Labourers ...	4	56	67
7	Prepare roof timbers and fix ceiling joists	Carpenters ...	2	32	38
8	Brickwork—Top out	Bricklayers ...	8	64	77
		Labourers ...	4	32	38
9	Roof carcase	Carpenters ...	2	32	38
10	Roof plumbing	Plumber and Mate	2	21	25
11	Felt, batten, tiling	Sub-contractor ...		—	—
				1,005	1,203
		Total Labour Force = 18			
	STAGE 3—FINISHINGS				
1	Internal Plumbing	Plumber and Mate	2	54	65
2	Glazing	do. do.	2	16	19
3	Carpenters first fixing	Carpenters ...	3	96	115
4	Electric carcase	Sub-contractor ...		—	—
5	Gas carcase and fittings ...	do.		—	—
6	Plasterboard ceilings	Lather	1	40	48
7	Bricklayer—Partitions and Cills	Bricklayer ...	1	48	58
		Labourer	1	48	58
8	Plastering walls and ceilings ...	Plasterers	4	192	230
		Labourers ...	2	96	115
9	Carpenters second fixing ...	Carpenters ...	2	96	115
10	Plumbers second fixing ...	Plumber and Mate	2	32	38
11	Electric fittings	Sub-contractor		—	—
12	Painting	Painters	4	192	230
13	Floor finish	Sub-contractor ...		—	—
				910	1,091
		Total Labour Force = 20 operatives			
	STAGE 4—SITE WORKS				
1	Unloading materials and plant	Labourers ...	5	15	18
2	Excavate drain and service trenches, return fill unloading	Labourers ...	4	144	173
3	Lay drains, build manholes ...	Bricklayer ...	1	32	38
		Labourer ...	1	32	38
4	Unloading— Lay paths, erect fences, site tidying	Labourers ...	4	208	250
				431	517
		Total Labour Force = 11 operatives			

of these trades must be idle for the difference in time occupied by the two related tasks. In practice, the differences in work content for which different trades are responsible are, to a large extent, compensated for by different gang strengths. For instance, there might be eight bricklayers to two carpenters and four plasterers to one plumber. This balancing of gangs, however, is not possible with every trade because there are physical limits to the size of gangs in some operations. When the site times are calculated for some operations or groups of operations it will be found that there is insufficient work to occupy one man continuously throughout the whole cycle. These operations would need to be dealt with intermittently. Fortunately, such intermittent operations need be very few and can usually be restricted to electrical and gas installations, floor finishing and perhaps wall tiling. As this type of work is normally sub-contracted, periodic attendances can be arranged within the cycle of the key operation.

BUILDING IN FOUR STAGES

As indicated above it is generally convenient to consider the work of house-building in four stages, each of which is initially programmed separately; the foundations up to damp-proof course, the shell from dpc to roofed-in stage, the finishings and the site works. The initial breakdown is advisable because of the possible variation in work content in the sub-structure and site works from what is contemplated before the actual start of the work. It also allows some flexibility between stages to provide for unavoidable delays due to bad weather and other unforeseen causes. According to the actual extent of these delays the overlap or the interval between stages can be adjusted as required on site. Because of this, working days in the initial programme for each stage are identified numerically only and calendar days substituted on site when the stage programmes are integrated.

If the benefits of the programme are to be realised it is, of course, essential that every effort should be made to adhere to it and arrangements made to compensate for any deviations within the stages themselves. For most operations, gang sizes can be increased to compensate for delays. By excluding certain ancillary works such as outhouses, manholes, etc., from the main programme, labour can be absorbed during periods of higher productivity than that assumed for the programme.

When implementing this method of programming it is useful, when the job

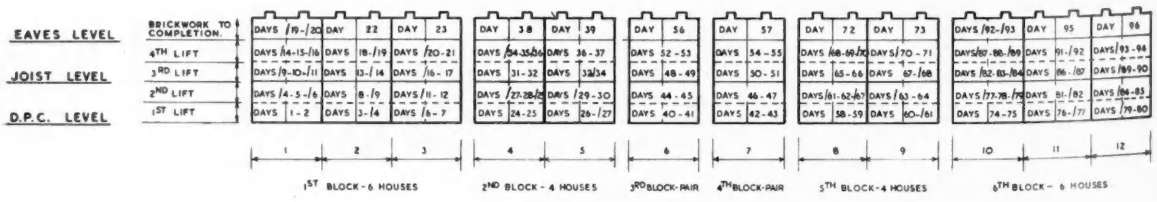


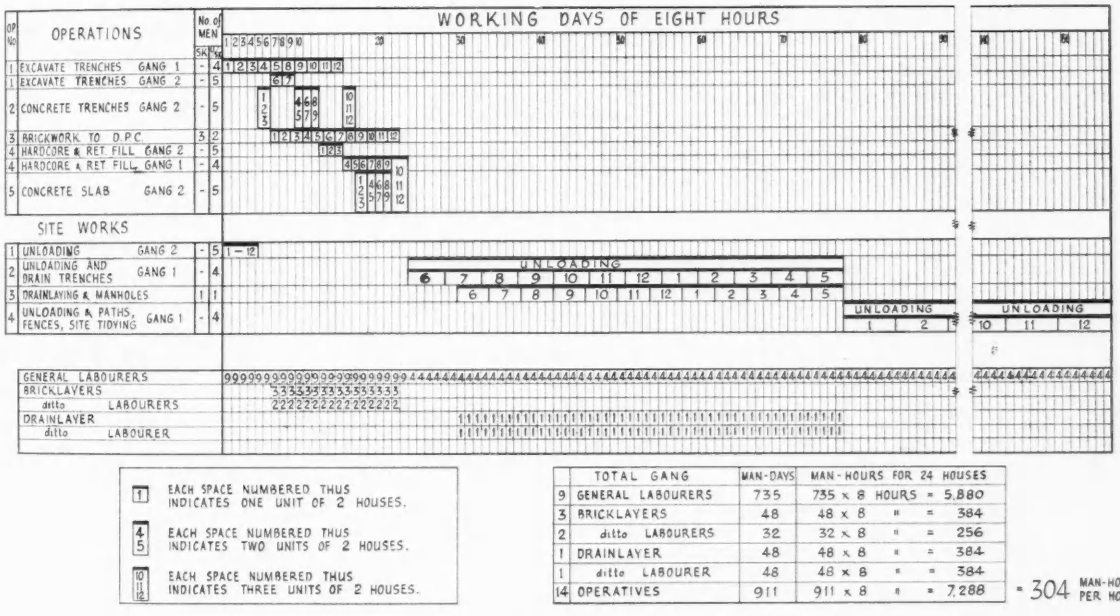
Fig. 1.—Elevational diagram, to facilitate the planning of operational sequences in bricklaying (key operation in shells).
NOTE: *Total working days for brickwork in shells—96. Where the days number is repeated and preceded by stroke—e.g. /4—in the above sequences only one-half of that working day is used.*

is large enough, to employ one gang or team on the same section of work throughout the job. By continued repetition of the same work on house after house, efficiency is increased through familiarity, a team spirit is developed and maintained and bonusing is facilitated and becomes more effective. With smaller jobs and a restricted labour force for the key operations, the same gang or the same individual operatives should be, as far as possible, employed repeatedly on the same group of operations.

A Typical Programme

We may use, as an example, a contract for 24 houses to be built in two terraces of six, two terraces of four and two pairs; each house containing about 16,000 bricks above dpc. In a typical case a maximum number of, say, ten bricklayers and four plasterers might be available for the work. It will be found, in general, that one or other of these trades will determine the master time cycle and the rate of production of the whole work.

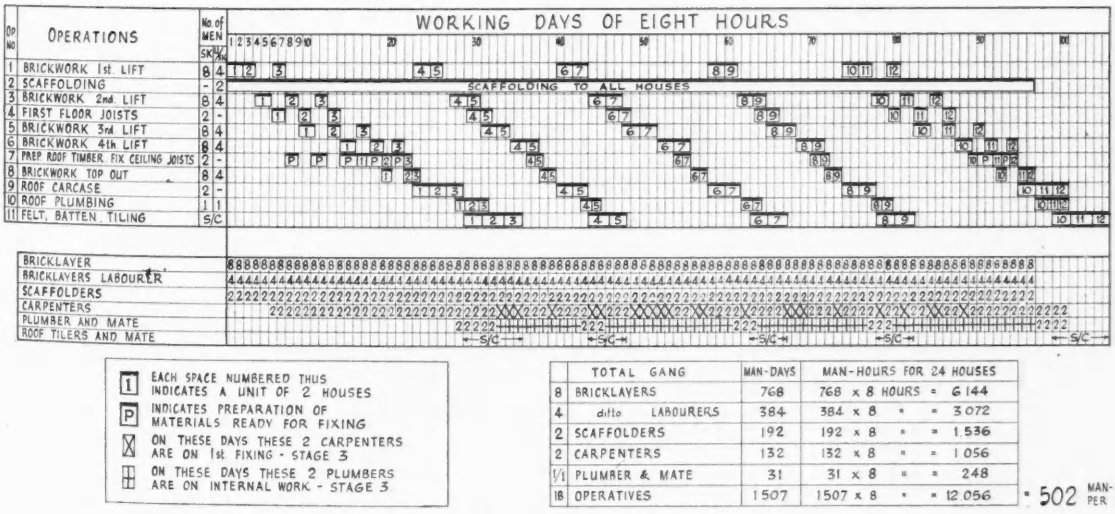
The draft schedule of operations is first prepared showing the manhours for each operation, the tentative gang strength and, consequently, the time cycle for each operation. Those operations which are to be carried out concurrently are identified. In house-building it will generally be found convenient to take two houses, rather than one, as a unit for planning as the work content of the various operations for two houses will be found more consistent with the gang size and time cycles which are normally employed. The draft schedule enables the key operation in each stage to be identified and determines the master operation. A working schedule is then prepared in which the time cycles of the various stages are brought into phase by adjustment of the gang strengths (see Table A). In this example the labour force available for plastering sets the rate of completion at one house every three working days. Taking a bricklayer productivity of about 80 bricks per manhour, then eight bricklayers would be required to produce a shell in three days and, consequently, this is the force that should be engaged even though more bricklayers could be available if required. It is con-


WORKING DAYS OF EIGHT HOURS
OPERATIONS
No. of MEN
1 EXCAVATE TRENCHES GANG 1
1 EXCAVATE TRENCHES GANG 2
2 CONCRETE TRENCHES GANG 2
3 BRICKWORK TO D.P.C.
4 HARDCORE & RET. FILL GANG 2
4 HARDCORE & RET. FILL GANG 1
5 CONCRETE SLAB GANG 2
SITE WORKS
1 UNLOADING GANG 2
2 UNLOADING AND DRAIN TRENCHES GANG 1
3 DRAINLAYING & MANHOLES
4 UNLOADING & PATHS, FENCES, SITE TIDYING GANG 1
UNLOADING
GENERAL LABOURERS
BRICKLAYERS
ditto LABOURERS
DRAINLAYER
ditto LABOURER
EACH SPACE NUMBERED THUS INDICATES ONE UNIT OF 2 HOUSES.
EACH SPACE NUMBERED THUS INDICATES TWO UNITS OF 2 HOUSES.
EACH SPACE NUMBERED THUS INDICATES THREE UNITS OF 2 HOUSES.

	TOTAL GANG	MAN-DAYS	MAN-HOURS FOR 24 HOUSES
9	GENERAL LABOURERS	735	735 x 8 HOURS = 5,880
3	BRICKLAYERS	48	48 x 8 " = 384
2	ditto LABOURERS	32	32 x 8 " = 256
1	DRAINLAYER	48	48 x 8 " = 384
1	ditto LABOURER	48	48 x 8 " = 384
14	OPERATIVES	911	911 x 8 " = 7,288

= 304 MAN-HOURS PER HOUSE

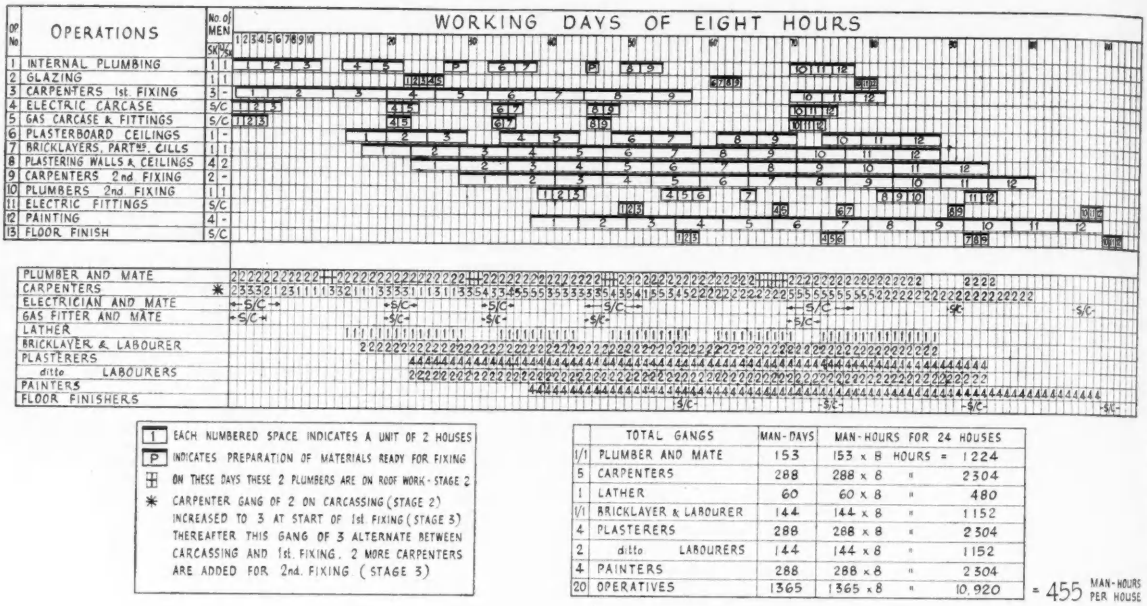
Fig. 2.—Stages 1 and 4—foundations and site work.


WORKING DAYS OF EIGHT HOURS
OPERATIONS
No. of MEN
1 BRICKWORK 1st LIFT
2 SCAFFOLDING
3 BRICKWORK 2nd LIFT
4 FIRST FLOOR JOISTS
5 BRICKWORK 3rd LIFT
6 BRICKWORK 4th LIFT
7 PREP. ROOF TIMBER. FIX CEILING JOISTS
8 BRICKWORK TOP OUT
9 ROOF CARCASE
10 ROOF PLUMBING
11 FELT, BATTEN, TILING
SCAFFOLDING TO ALL HOUSES
BRICKLAYER
BRICKLAYERS LABOURER
SCAFFOLDERS
CARPENTERS
PLUMBER AND MATE
ROOF TILERS AND MATE
S/C
EACH SPACE NUMBERED THUS INDICATES A UNIT OF 2 HOUSES
INDICATES PREPARATION OF MATERIALS READY FOR FIXING
ON THESE DAYS THESE 2 CARPENTERS ARE ON 1st FIXING - STAGE 3
ON THESE DAYS THESE 2 PLUMBERS ARE ON INTERNAL WORK - STAGE 3

	TOTAL GANG	MAN-DAYS	MAN-HOURS FOR 24 HOUSES
8	BRICKLAYERS	768	768 x 8 HOURS = 6 144
4	ditto LABOURERS	384	384 x 8 " = 3 072
2	SCAFFOLDERS	192	192 x 8 " = 1 536
2	CARPENTERS	132	132 x 8 " = 1 056
1/1	PLUMBER & MATE	31	31 x 8 " = 248
18	OPERATIVES	1507	1507 x 8 " = 12 056

= 502 MAN-HOURS PER HOUSE

Fig. 3.—Stage 2—Shells.


WORKING DAYS OF EIGHT HOURS
OP No
OPERATIONS
No. of MEN
1 INTERNAL PLUMBING
2 GLAZING
3 CARPENTERS 1st FIXING
4 ELECTRIC CARCASE
5 GAS CARCASE & FITTINGS
6 PLASTERBOARD CEILINGS
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8 PLASTERING WALLS & CEILINGS
9 CARPENTERS 2nd FIXING
10 PLUMBERS 2nd FIXING
11 ELECTRIC FITTINGS
12 PAINTING
13 FLOOR FINISH
PLUMBER AND MATE
CARPENTERS
ELECTRICIAN AND MATE
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LATHER
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EACH NUMBERED SPACE INDICATES A UNIT OF 2 HOUSES
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ON THESE DAYS THESE 2 PLUMBERS ARE ON ROOF WORK - STAGE 2
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TOTAL GANGS
MAN-DAYS
MAN-HOURS FOR 24 HOUSES
1/1 PLUMBER AND MATE 153 153 x 8 HOURS = 1224
5 CARPENTERS 288 288 x 8 " 2304
1 LATHER 60 60 x 8 " 480
1/1 BRICKLAYER & LABOURER 144 144 x 8 " 1152
4 PLASTERERS 288 288 x 8 " 2304
2 ditto LABOURERS 144 144 x 8 " 1152
4 PAINTERS 288 288 x 8 " 2304
20 OPERATIVES 1365 1365 x 8 " 10.920
= 455 MAN-HOURS PER HOUSE

Fig. 4.—Stage 3—finishings.

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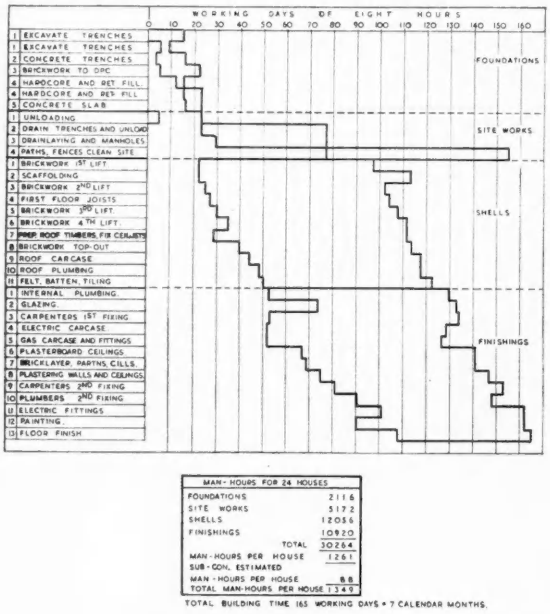

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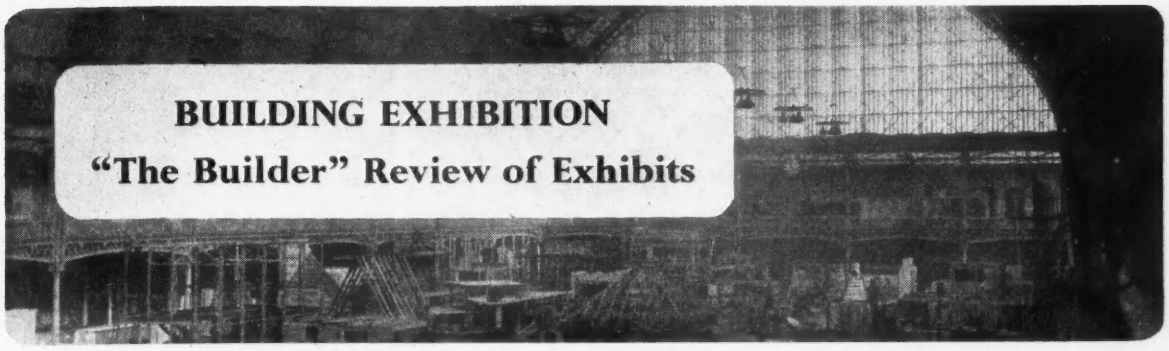

BUILDING EXHIBITION
"The Builder" Review of Exhibits

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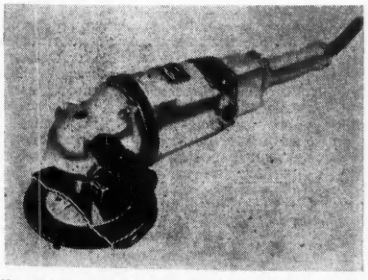
Plant and Equipment

Aveling-Barford, Ltd., Morris House, 1-5, Jermyn-street, SW1, are showing five machines —a maintenance grader, calfdozer and three dumpers of ½, 1 and 3 cu. yd. capacities. The maintenance grader, introduced 18 months ago, is a low cost unit available with a wide range of attachments including bulldozer, road planer and power take-off. It has a ballasted weight of 8,560 lb. and a special A-frame mounting which transmits the thrust to the 9 ft. blade direct from the driving axle. The 3 cu. yd. dumper has power-assisted tipping and two-way steering, and positive ejection of the load can be assured by a patent device utilising the torque reaction of the brakes. (Stands D, 71 and 72.)



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The display of **J. C. Bamford,** of Rocester, Staffs, features the JCB excavator, Major loader and half track, exhibited for the first time. The excavator can dig where the use of larger types would be prohibitive because of cost, and will dig to a depth of 11 ft.; bucket sizes from 12 in. to 48 in. being available. The machine will work at any angle and has a maximum discharge height of 12 ft. with a reach of 15 ft. The loader carries a ¾ cu. yd. bucket which can tip from 1 ft. 6 in. to 8 ft. under lip. By using a platform it will deliver items up to an 11 ft. staging and will enable a man to paint up to 18 feet. It also carries a crane which will lift 15 cwts. to 10 ft. 6 in. (Stand L, 255.)

An extensive range of centrifugal pumps is being shown by **James Beresford and Son, Ltd.,** Mackadown-lane, Kitts Green, Birmingham, 33. One of the most interesting is a submersible electric pump for deepwell pumping duties. It is a combined motor and pump unit, the whole of which is submerged in the excavation borehole—consequently it cannot be heard, needs no pump-house and can be entirely automatic in operation. A single-stage, self-priming pump capable of providing water for large homes (with little more equipment than a storage tank and a float switch) provides for automatic operation and is also on view. Portable pumps, suitable for dewatering duties on site, are featured among the rest of the exhibits. (Stand Q, 303.)

Two of their wide range of loading shovels are exhibited at the stand of **W. E. Bray and Co., Ltd.,** Faggs-road, Feltham, Middx. Operated by the exclusive hydraulics of this company, both loaders are designed to meet the varying requirements of earth moving and materials handling. The "Hydraloader" is now fitted with power-assisted steering, and for adverse ground conditions, may be fitted with half-tracks. The "Dualoader" is an overhead and front-end loader in one, performing each function without modification. The latter shovel is particularly suitable for speeded work cycles, work in confined conditions or where manoeuvrability is restricted. (Stand C, 65.)

A varied range of portable electric tools is shown on the stand of **S. N. Bridges and Co., Ltd.,** Bridge-place, Parsons Green-lane, SW6. Included is a range of drills from the ¼ in. general-purpose type to a 1½ in. multi-speed drill. Other products include a portable chain mortiser, portable router and blower, a variety of sanding machines for both light and heavy industries, and a portable jigsaw for cutting up to 2 in. in soft wood. A portable 7 in. disc grinder and 14-gauge shear is on show, together with adjustable pipe dies. (Stands Q, 316 and 317.)

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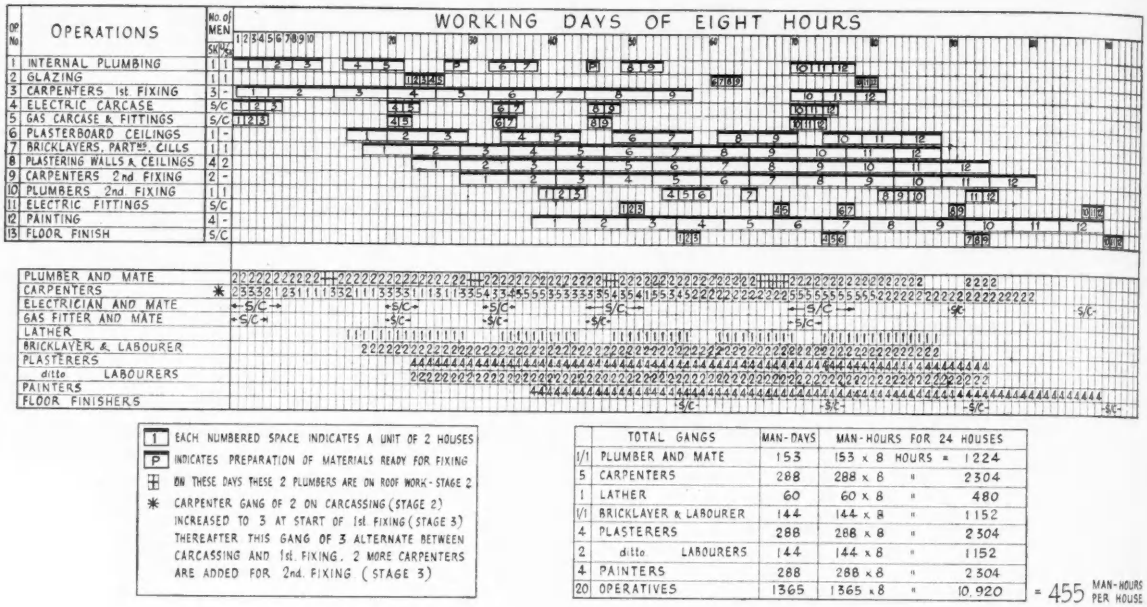
The firm of **A. Cooksley and Co., Ltd.,** 21/25, Tabernacle-street, EC2, are this year showing a wide variety of their range of woodworking machinery. This includes a compact universal woodworker, of special interest to the small builder, together with a heavy duty model.

The "Domobile" ¾-yd. universal excavator featured by Ernest Doe and Sons, Ltd., Ulting, Maldon, Essex, is powered by a Ford industrial diesel 55-h.p. engine and can take six equipments: backacter, face-shovel, dragline, grab, skimmer and crane. Both forward and working movement is controlled from one stationary cab—the counter-weighted cable tower revolving through a 270 degrees arc. A "Dinkum Digger" is also shown mounted on a Ford "County Crawler" tractor. (Stands 358 and 358A.)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OP No
OPERATIONS
No. of MEN
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3 CARPENTERS 1st FIXING
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10 PLUMBERS 2nd FIXING
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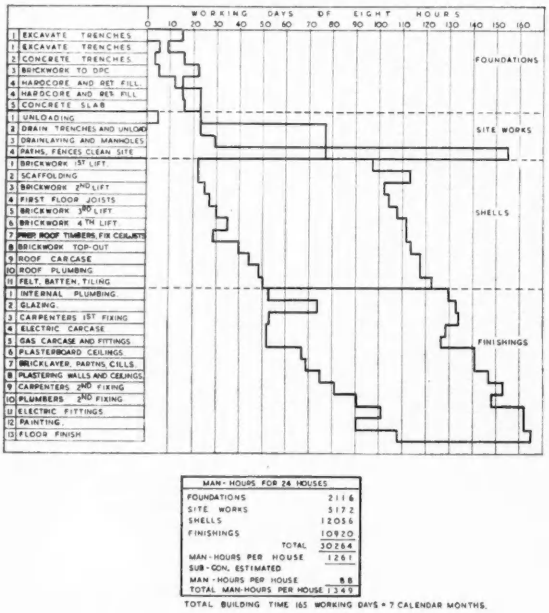

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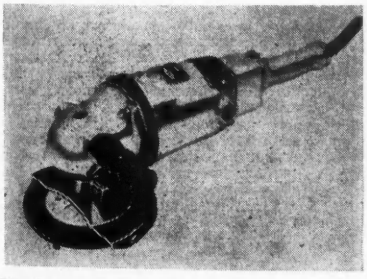

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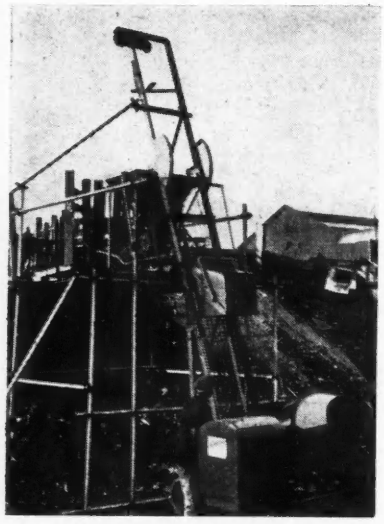
A range of small air-cooled power units are displayed by the **BSA Motorcycles, Ltd. (Small Heath Group),** Birmingham, 11. These engines are of the single cylinder, four-stroke, side-valve type, and operate on vapourising oil or power paraffin as well as petrol, although output is slightly lower when using the cheaper fuels. They are started by either rope and pulley or by handle, while a kick starter mechanism is available for the 120 cc model. All can be supplied with built-in reduction gears giving ratios and can be fitted with a centrifugal clutch to give free engine rotation at crankshaft speeds below 900 rpm and solid drive at speeds above 1,400 rpm. (Stand 431.)

A representative selection of their earth-moving equipment is being shown by **Chaseside Engineering Co., Ltd.,** of Hertford. Among these is the new Loadmaster 500 and 600 hydraulic shovels—fast-moving diesel powered loading tools available with 11 sizes of interchangeable scoop, from ¼ cu. yd. to 2 cu. yds. The 500 model is rear-wheel driven, and the 600 front-wheel driven. Their discharge height is 11 ft., and these shovels can be quickly converted into either one ton or ten cwt. cranes or a light bulldozer by fitting suitable attachments. A fork lift unit can be fitted in place of the normal scoop and side arm assembly. Also on view is a 3½ cu. yd. "Hi-Speed" dumper, as well as the diesel "Power Pack" for driving cement mixers, elevators and similar plant. (Stands D, 68 and 69.)

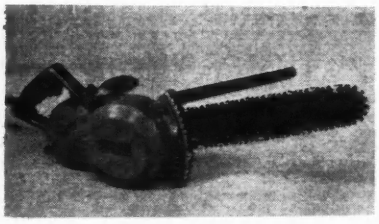
The firm of **A. Cooksley and Co., Ltd.,** 21/25, Tabernacle-street, EC2, are this year showing a wide variety of their range of woodworking machinery. This includes a compact universal woodworker, of special interest to the small builder, together with a heavy duty model.

The "Domobile" ⅜-yd. universal excavator featured by Ernest Doe and Sons, Ltd., Ulting, Maldon, Essex, is powered by a Ford industrial diesel 55-h.p. engine and can take six equipments: backacter, face-shovel, dragline, grab, skimmer and crane. Both forward and working movement is controlled from one stationary cab—the counter-weighted cable tower revolving through a 270 degrees arc. A "Dinkum Digger" is also shown mounted on a Ford "County Crawler" tractor. (Stands 358 and 358A.)



This bucket hoist outfit, exhibited by Benford, Ltd., The Cape, Warwick, is suitable for concreting flat roofs and floors up to a maximum height of 18 ft. It combines a 3½ mixer with hoisting winch and a self-tipping bucket, ramp and receiving hopper of steel construction. The company are also showing a range of their concrete mixers, power barrows and diesel dumpers. (*Stands D, 73 and 74.*)

A complete range of thicknessers are featured, as well as over- and under-planers, spindle-moulders, mortisers, dovetailers, circular saw-benches, crosscut saws and sanding machines. a new PGV vertical finisher, and also a new semi-automatic, single-pin dovetailer are being displayed, and are of compact design and sturdy construction—allowing a much faster setting-up and operation. (Stand X, 384.)



The "Baby Electric" portable chain saw introduced by J. Clubley Armstrong Danarm, Ltd., Abford House, Wilton-road, Westminster, SW1, is fitted with a butterfly chain for making 9-in. or 12-in. cuts, and can be used off an ordinary household electricity supply. A completely restyled model of the "Junior" electric one-man chain saw is also displayed, and will take up to a 3-ft. guide blade. (*Stand 559.*)

The exhibits of **Danckaerts Woodworking Machinery, Ltd.,** 2-6, East-road, City-road, N1, include a band-sawing machine with roller feed attachment. This machine has wheels 32 in. in diameter taking blades up to 2½ in. wide, and will replace a band resaw when most of the cutting is under 4 in. deep and can also be used for ordinary bandsawing. A multiple rip saw with automatic feed is on view, as well as an improved overhead planing and jointing machine which has tables 8 ft. in length, overall mounted on widely spaced double slides for accuracy. A panel planing and thicknessing machine is on show which will take timber up to nearly 20 in. wide. Of streamlined appearance, it embodies four-knived cutter blocks with wedge-tightened knives, infinitely-variable feed mechanism and front adjustment to bottom feed rollers. A four-sided planing and moulding machine is displayed, and is suitable for a large variety of operations on timber up to 23½ in. in width and 7 in. in thickness. (Stand Y, 394.)

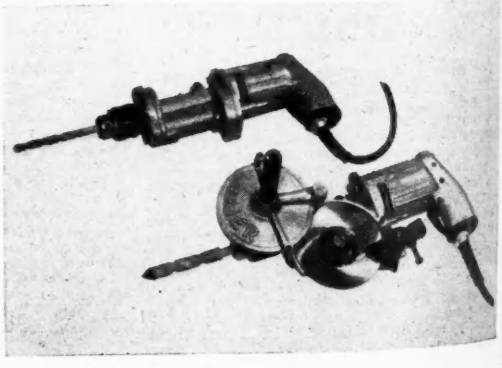
The stand of **C. H. Johnson (Machinery), Ltd.,** Adswood, Stockport, Cheshire, features a ¼ yd. dumper; an "MA" type conveyor, and a selection of centrifugal pumps with the new "Fasprime" seal. A power rammer is featured, together with various flexible drive concrete vibrators. The company have recently been appointed as sole agents in Great Britain and Northern Ireland for the Peiner range of tower cranes and the ABG range of concrete road-making machinery. (Stands G, 162 and 163.)

THE BUILDER stand (G, 141) is conveniently placed, as in previous years, opposite the main entrance to the Grand Hall from Addison-road Station. It features a comprehensive selection of architectural and technical books, and the three special Exhibition numbers of THE BUILDER will be obtainable from the stand as published. Of particular interest is a display of enlarged copies of some of the "Acanthus" humorous drawings which appear weekly in the THE BUILDER.

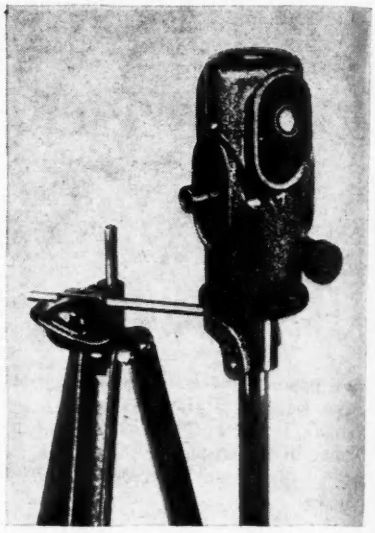
The books shown include the recently published "Designs for the Smaller Home" as well as two technical reviews, "The Heating of Churches" and "Church Roof Coverings." "The Architect's and Builder's Compendium" is displayed, together with "Accounting and Costing Systems for Small and Medium-sized Builders." The new Builder Diaries for 1956 are also available.

The "H" type breaker exhibited by **Kango Electric Hammers, Ltd.,** Morden Factory Estate, Lombard-road, South Wimbledon, SW19, is claimed to be the most powerful portable electric hammer in the world, being designed for heavy duty concrete breaking and similar work. The breaker can be operated from normal mains supply or a small portable generating set, and its consumption is approximately 1,500 watts. The range of hammers displayed also includes hammers for cutting away concrete or brick and drilling up to 3 in. diameter holes in similar materials, as well as a general purpose electric hammer for bush hammering, vibrating, floor cleaning and drilling. A lightweight hammer is available for overhead work, chase cutting, brick raking and scaling. (Stand H, 179.)

Displayed on the stand of the **Liner Concrete Machinery Co., Ltd.,** Gateshead 8, is a representative range of their mixers. Also featured is the "Nipskip" with 3½ h.p. "Villiers" air-cooled petrol engine. This has a water level capacity of 8¼ cu. ft. and 10 cwts. maximum load, with direct rear wheel steering and front axle drive. The "Roughrider" 15 cwt. diesel Dumper is displayed, together with the "Portasaw," a 26 in. dia. saw with a 7 in. depth of cut, driven by 6 hp "Petter" diesel engine. (Stand N, 271.)



Shown for the first time by the Langham Export Co., Ltd., 19, Margaret-street, W1, is a range of electric "Combi" multi-purpose tools. The "Combi 2" is a combined boring machine and hammer drill. Shown beneath it is its companion, the "Combi 3," which has an additional hack-saw device. Both models will drill steel, stone or concrete, and a "Baier" portable cold metal circular saw is also featured, with electric or pneumatic drive. (*Stands 545 and 547.*)



The "Sitesquare" developed by Hilger and Watts, Ltd., 48 Addington-square, SE5, is designed for setting out and checking right-angles and for laying out profiles quickly and efficiently. Simple to use, it is an optical instrument with a range of over 100 ft., the makers claiming that an angle can be laid over that distance to an accuracy of better than 1 in. It can be used on very rough or uneven ground, and is useful for fencing work and similar applications. (*Stand 546.*)

An unconventional diesel engine designed by the Rootes Group is being shown for the first time by **R. A. Lister and Co., Ltd.,** Dursley, Glos. Known as the "TS3," it is a three-cylinder direct injection water-cooled engine with horizontally opposed pistons. The "TS3" develops a rated horse power of 66 bhp at 1,500 rpm; and 77 bhp at 1,800 rpm for twelve hours continuously, including 10 per cent. overload for periods not exceeding one hour. It is displayed direct coupled to a self-regulating alternator and to a Sigmund single-stage centrifugal pump. Examples of the Lister-Blackstone range of petrol, vapourising oil and diesel engines are featured, as well as a new portable generating set, weighing only 635 lbs., incorporating a 3 hp air-cooled diesel engine. This plant is mounted on a two-wheeled rubber-tyred trolley, but can be provided with a skid base. Also on view is a representative range of deep and shallow well pumps, together with the "Auto-Truck" for handling liquid concrete, and an all-purpose power loader. (Stands H, 172 and 173.)

The Allis-Chalmers "Tracto-Shovel," model HD.5G, is being featured on the stand of **Mackay Industrial Equipment, Ltd.,** Faggs-road, Feltham, Middx., and is shown with three of its 16 equipments, namely a standard 1¼ cu. yd. bucket, a trench-hoe, and a hydraulic ripper. Since the last Building Exhibition, Mackay have acquired an exclusive licence for the British Pescara-Muntz P.42 free piston two-tool com-

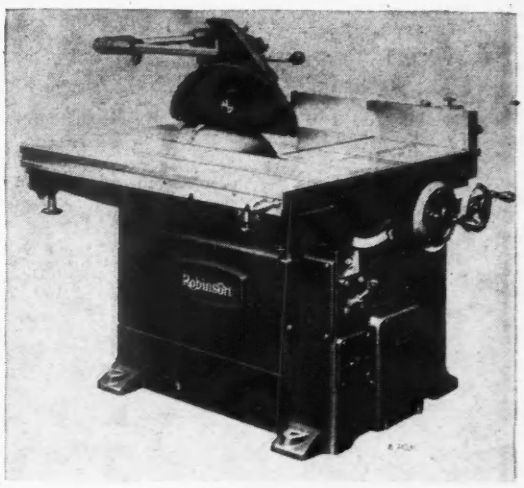
pressor, and this is exhibited together with a sectional model showing the working parts. The Merton " Overloader " wheeled loading shovel is being exhibited. This loader is based on the Fordson Major engine and transmission, and fills its bucket at the front of the machine and discharges it over the rear. Its features include a full width ¼ cu. yd bucket, variable discharge height, and a loading cycle of 15-20 seconds. (Stand X, 380.)

A new fork lift suitable for work on rough ground is shown by **Massey-Harris-Ferguson (Sales), Ltd.**, Coventry. It is attached to the Ferguson mobilepower unit, and when the fork-lift is not required, the mobile power unit is available for other work. The clearance beneath the Ferguson mobile power unit and attachment permits it to negotiate ruts and rubble and travel over rough ground surfaces. It will lift a 10 cwt. load up to 10 ft. 9 in. and is hydraulically controlled. A flow-control valve ensures an even descent on the fork. (Stand X, 381.)

The main items of interest exhibited by **Millars' Machinery Co., Ltd.**, Bishop's Stortford, Herts, are the " Anson " 7-NT and " Vanguard " 10-NT concrete mixers, each fitted with patented hydraulic batch proportioning gear. The 10-NT has a mixed batch capacity of 10 cu. ft., its all-enclosed design providing maximum protection to the operator and working parts. The power transmission is removable as a unit for servicing. The 7-NT mixer has a lower mixed batch capacity of 7 cu. ft., and both plants can be supplied with steel pneumatic-tyred road wheels and a variety of petrol, diesel or electric motors. A 3-in. lift and force pump powered by a 5 hp air-cooled diesel engine and capable of handling solids not exceeding 1¼ in. in diameter is displayed. Technical information is available on the Millars' " Wellpoint " dewatering system and the " Vacuum Concrete " process. (Stands M, 258 and 259.)

The display of **John Pickles and Sons (Engineers), Ltd.**, Hebden Bridge, Yorks, comprises a representative range of their sawmill and wood working machinery, including a new vertical band resaw, type FP, with push rolling table. This machine has saw pulleys 44 in. diameter for saws 4½ in. wide, and is available as a roller feed resaw only; with a rolling table arranged for push feeding; or alternatively with roller stands for location before and after the saw for supporting a push rolling table 10 ft. long. A twin-stair trenching machine, type ST, is being shown, and has two trenching spindles driven through flexible belts from a rear mounted motor which enables a pair of string boards to be trenched simultaneously, to ensure perfectly matched strings. The machine has a patent set-out template to obviate marking out. The rest of the display includes an automatic finger-feed surface planing machine (completely redesigned and motorised); a high-speed straight line edger for saws up to 18 in. diameter; an entirely redesigned triple drum sandpapering machine; and a heavy pattern automatic vertical hollow chisel mortiser. (Stands V, 370.)

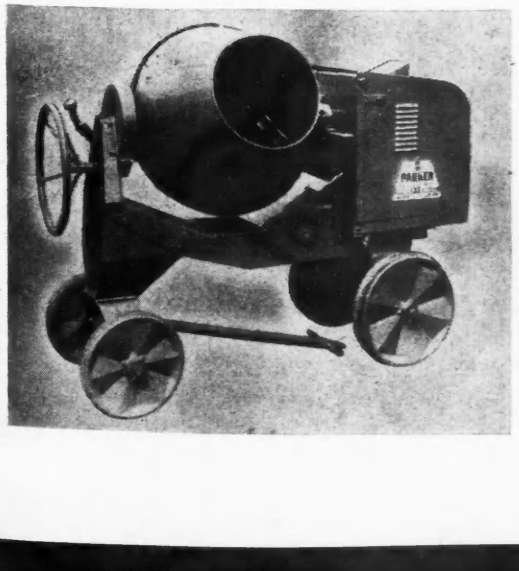
Their system of bulk cement handling is being featured by **Portasilo, Ltd.**, Blue Bridge-lane, York. This requires no power of any sort on site for its operation, and consists of a portable cement silo of laminated wood construction which is loaded pneumatically from a bulk cement tanker by means of a delivery hose. A " Pullwey " mechanical cement man provides automatic batchweighing of the cement, and has a sliding counterweight to give instant adjustment against a calibrated scale. When the required amount of cement has been delivered the discharge valve automatically closes. Three models of the " Portasilo " are available, of 10 tons, 13/14 tons and 20 tons nominal capacities. A special handling device is marketed which enables the two larger types to be handled by three men. (Stand X, 382.)



This tilting spindle dimension saw bench displayed by Thomas Robinson and Son, Ltd., Africa House, Kingsway, WC2, is of a new design. Its motorised saw spindle will rise and fall, and tilt up to 45 degrees. A brake is incorporated, the table remains horizontal, and the riving knife is carried from the motor and adjusts with it. Also on view is a recently-introduced 54 in. vertical band re-saw, an independent floor-mounting top throating head unit and an automatic straight cutter grinder. The XL/E electric moulder displayed can now be supplied with one or two top heads, as required. (Stands V, 369 and W, 371.)

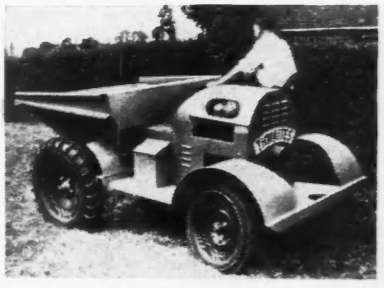
The Rawlplug Co., Ltd., Cromwell-road, SW7, are demonstrating their wide range of fixing devices and tools, and pride of place is, of course, given to the " Rawlplug." Of especial interest are the demonstrations of the uses of " Rawlbolts "—metal expansion bolts for heavy duty fixing jobs. A wide range of tools for making holes in masonry are featured with manual, electric and air operation in a range of sizes up to 24 in. long penetrating thick walls. Durium-tipped drills are on show as well as the Rawlplug drill hammer, an attachment for converting the rotary motion of an electric drill into a powerful hammer. (Stand L, 242.)

Their T34 " Tornado " cartridge hammer is displayed by **Roura and Forgas, Ltd.** 27-37, Broadwick-street, W1, for the first time, and incorporates improved safety devices to make it virtually impossible for the tool to be fired accidentally. The cocking and firing mechanisms are controlled by a twist grip handle action, and a metal splinter protector is fitted to the barrel to protect the operator. The ¼ in. model is made as a complete unit known as the T34 K22; a second model T34 K38 being marketed with interchangeable 5/16 in. and ⅜ in. barrels. (Stand 606.)



The 3½ T " Little Giant " mixer displayed by Frederick Parker, Ltd., Catherine-street, Leicester, is shown for the first time at the Exhibition, and features several improvements, including the replacement of many castings by fabricated and pressed steel parts, as well as a redesigned engine housing. A new " Compact " two-wheel mixer is also shown, together with a light portable belt loader with a 20-ft. boom and a 20-ins.-wide belt. (Stands P, 296 and 297.)

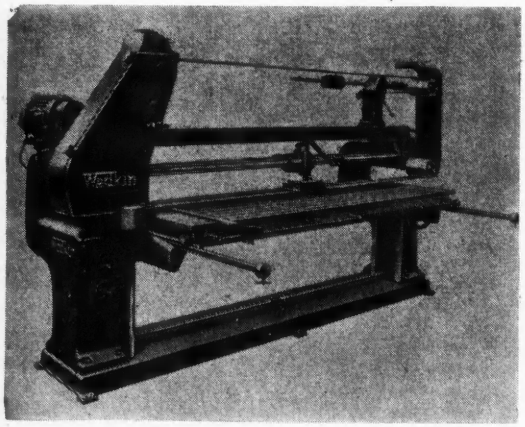
The Industrial Tractor Division of **H. A. Saunders, Ltd.**, 836-842, High-road, North Finchley, N12, are exhibiting an improved version of the Bristol 22 diesel hydraulic angle-dozer, known as the Bristol 25. The main improvements include doubled back-up speed, redesigned track assembly and improved transverse front suspension. The unit operates at about ½ gallon diesel fuel per hour, and clutch and brake steering enables the tractor to turn in its own length. Also on show are the Conder 1½ cu. yd. hydraulic scraper and a ½-ton hydraulic ripper. (Stands F, 116 and 117.)



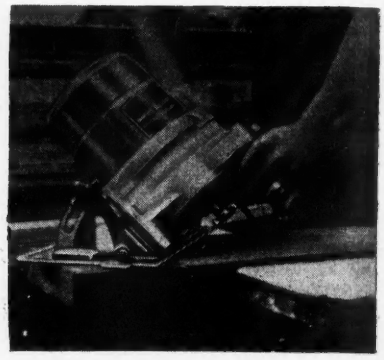
A 1½-cu.-yd. four-wheeled dumper has recently been introduced by the Thwaites Agricultural Engineering Co., Ltd., Cubbington, Leamington Spa, and is capable of carrying 20 cu. ft. of liquid concrete or 44 cu. ft. of muck at speeds up to 18 mph in wet conditions. A redesigned 15-cwt. three-wheeled hydraulic-tipping diesel dumper, now fitted with a gear box, is also shown together with the standard 15-cwt. four-wheeled model. (Stand H, 171.)

Exhibited for the first time by **Stenners of Tiverton, Ltd.**, Tiverton, Devon, is their CSM heavy duty crosscut, which will crosscut 30 in. by 11 in. The hydraulic feed to the saw is foot-controlled and is infinitely variable up to 110 ft. per min. feed with constant fast return. The saw is mounted below the timber and cuts forward towards the fence. Another new machine is the VHK 42 in. band resaw, a version of the VH 42 in. The latest features include a six-speed gear box and a saw 5 in. wide. The top saw pulley has been lowered to give a stiffer saw, and the fence cants 45 degrees by means of a screw. Introduced earlier this year, the VJC 42 in. combined band push bench is being shown, and is a dual-purpose machine for breaking down round logs of medium size and for resawing, and is particularly suitable for use where space is limited. It can be quickly adapted for hand resawing. The recently developed SF automatic saw-sharpening machine is also on view, together with an ABM canting spindle dimension saw bench. (Stand V, 367.)

Exhibited by the **Tarpen Engineering Co., Ltd.**, Ixworth House, Ixworth-place, SW3, is an electrically-driven hand chain saw, capable of cutting down trees or through logs and wood up to 7 in. diameter. Its operating power can



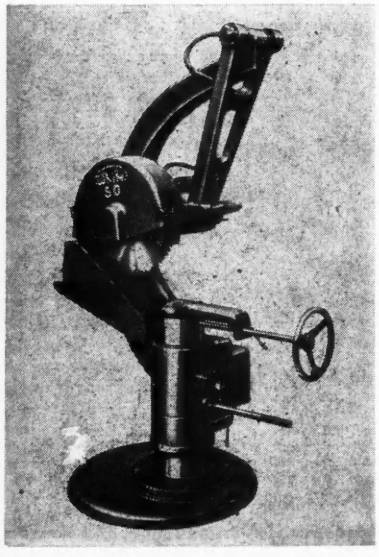
This open-end belt sander has been reintroduced into the range of woodworking machinery produced by Wadkin, Ltd., Brookfield House, 62-64, Brook-street, W1. Special attention has been given to dust collection, and while similar in general design to the earlier models, the type GZ is understood to be far cleaner in this respect. It is of the overhead type with four pulleys and has swan neck columns to allow any length of work to be sanded. The table rises and falls to give 23 ins. maximum capacity under the sand belt, and a travelling pressure pad moves across on circular runways. Other items shown include a range of sawing machines and two types of cutter grinding units. (Stand U, 361.)



Compound angles can be quickly and accurately cut on purlins and similar elements by the use of this 10 in. electric portable saw produced by Wolf Electric Tools, Ltd., Hanger-lane, W5. Special prominence is being given this year to a new range of highspeed heavy duty angle-grinders designed expressly to operate depressed-centre reinforced abrasive grinding discs. On weld-dressing work these machines are claimed to show a time saving of at least 50 per cent. (Stands Y, 392 and 393.)

be derived either direct from the electric mains —when the use of a transformer is advised— or from a portable generator. (Stands N, 175 and J, 210.)

A comprehensive range of the concrete production plant made by **Trianco, Ltd.,** Imbercourt, East Molesey, Surrey, is displayed, comprising automatic blockmaking machines, batch elevator, mixer and overhead conveyor system. The new 21/14 cu. ft. "Duplex" paddle-type mixer has been specifically designed to meet the needs of the concrete product manufacturer. The bearings of the machine, being independent



Designed for fine, accurate cross-cutting, both straight and angled, the rapid cross-cut saw, type SO, featured by Thomas White and Sons, Ltd., Paisley, Scotland, is available with either hand or pneumatic control and can be used for trenching and grooving. A new double-drum sander is on view, as well as an automatic plane iron-grinding machine and a representative range of the company's woodworking machinery. (Stands U, 362 and V. 366.)

of the mixer drums, are protected from grit by special spring-loaded glands. (Stands P, 294 and 295.)

The United Kingdom Caterpillar Dealers are exhibiting for the first time the two new Caterpillar No. 933 and No. 955 "Traxcavator" material handlers. The No. 933 has a capacity of 1 cu. yd. and the No. 955 a capacity of 1½ cu. yd. Claimed to be the only shovel units built as one unit with the tractor, the "Traxcavators" are balanced without counter-weights for improved stability and performance, and are powered by 50 hp and 70 hp engines respectively. An oil-type clutch is understood to give longer, maintenance-free operation between overhauls, and the design features include a 40 degrees bucket tilt-back at ground level, simplified controls, large capacity hydraulic systems, a rigid close-coupled bucket arm action and high-speed manoeuvrability. The No. 955 has two reverse speeds up to 264 ft. per min. with four forward speeds up to 607 fpm; while the No. 933 has reverse speeds up to 264 fpm and four forward speeds up to 528fpm. (Stand H, 167.)

The range of plant and tools shown by **Thos. W. Ward, Ltd.,** Brettenham House, Lancaster-place, Strand, WC2, includes the Hemel-Ward "Rover Hoistower," an easily-moveable and erected hoist mounted on standard road wheels and driven by either petrol, diesel or electric motor. The standard delivery height of 20 ft. can be extended to 84 ft. with extra sections; and a single or double-barrow platform can be supplied to lift 10 cwts. at a hoisting speed of 100 ft. per min. The range of concrete mixers on view includes 10/7; 5/3½, and 3/2 sizes. The 10/7 is the latest type hopper-fed, tilting drum mixer with two mix positions and an accurate water dispenser. The 5/3½ mixer, complying with BSS 1305, is of strong construction, the drum design giving extra speed and thoroughness of mix. The 3/2 cu. ft. mixer is mounted on only two pneumatic wheels and can be loaded and unloaded by two men and wheeled about by one man in any space which will take a wheelbarrow. Various types of pump suitable for building sites are also shown. (Stands H, 168 and 169.)

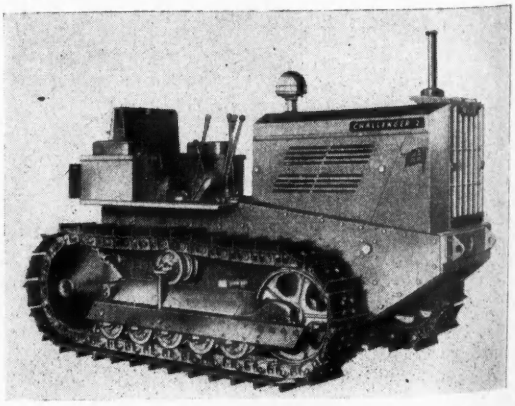
Particular prominence is being given by **Warry Patent Building Equipment Co., Ltd.,** North Feltham Trading Estate, Faggs-road, Feltham, Middlesex, to their new "Classic" series of diesel-powered hoists, exhibited for the first time. These units are of the totally-enclosed type, with reduction unit and band-type clutch, completely protected from dust and dirt, and running in oil. This eliminates the necessity for belts, chains and sprockets. The unit is lubricated by 1½ gallons of engine oil, and the only maintenance required is understood to be a periodic oil check. The mobile hoists' capacities range from 10 to 20 cwts. Demonstrations are also being given with the "Simplex" brick truck. (Stand D, 67.)

The S7 concrete breaker displayed by **Warsop Power Tools, Ltd.,** 27, Regent-street, SW1, incorporates several new features to provide a greatly improved power/weight ratio for heavy duties. The HD rock drill has a similar power unit and is a portable drill suitable for drilling down to 8 ft. A new 3 in. diesel pump driven by a Petters AVA 1 diesel engine is also featured, and is a recent addition to the range of P type self-priming centrifugal pumps. Its pump has a free-flow output of 14,500 gals. per hr. and a total head of 115ft. (Stand K, 222.)

The mobile "Major" 7-10 cwt. builders' hoist featured by the **Wickham Engineering Co., Ltd.,** 34, Victoria-street, SW1, has a maximum operating height of 100 ft. and is available with air-cooled diesel, petrol or electric motor. A "Junior" hoist of 5 cwt. capacity on maximum operating height 50 ft. is also exhibited. A 10-15 cwt. friction winch with a Ruston Hornsby diesel engine can be inspected, as well as a range of lift and force dumpers and a pressure steam cleaner for degreasing, paint stripping and sterilising. (Stands G, 160 and 161.)

Two new items of equipment are being featured by **Witlor, Ltd.,** 107-109, Lancaster-street, Birmingham, 4. They are the Bates 1½ ton dumper powered by Petters two-cylinder air-cooled diesel engine (struck capacity 25.5 cu. ft.; heaped capacity 34 cu. ft.); and the Arley hydraulically-operated controlled-tipping hopper with an 18 cu. ft. struck capacity, mounted on the rear of a diesel tractor with "Skyhi" fore-end hydraulic equipment and a backfilling blade and ¼ or ½ yd. loading shovel The company are also showing the "Dinkum Digger," now available on various tractors in addition to the Fordson Major: as well as a range of "Winget" concrete mixers. (Stand K, 218.)

A new Fowler "Challenger" 2 diesel crawler tractor is being shown for the first time by Thomas W. Ward, Ltd., Brettenham House, Lancaster-place, Strand, WC2. Fitted with angle dozing gear, it develops 60 bhp at 1,600 rpm and features CAV fuel injection, Borg and Beck "Power Pack" clutch unit and six forward speeds. It has a drawbar pull ranging from 2,200 lbs. in sixth up to 13,000 lbs. in first gear. (Stands H, 168 and 169.)



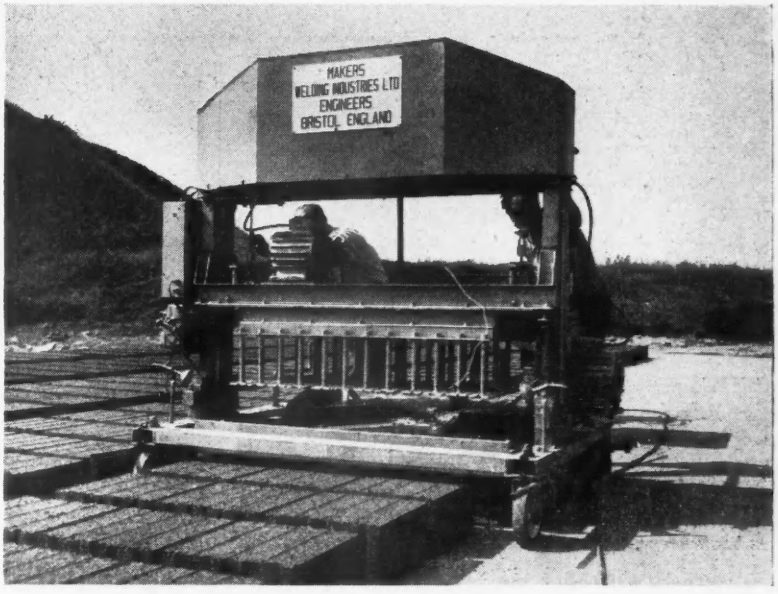
Concrete, Stone and Clay Products

The stand of **The Accrington Brick and Tile Co., Ltd.,** Accrington, Lancs., has been designed by Philip Dod, of Messrs. Willink and Dod, FF.RIBA, and comprises two slabs of brickwork which exhibit the company's various bricks. The floor has been formed of 2 in. thick multi-coloured non-slip "paviors," and a 16 ft. high display wall of red sandfaced bricks has been designed as a sculptured slab broken by recesses and projections, displaying on the outer face an 18 in. diameter ornamentation. The firm's trade name "Nori" is formed of glazed bricks, and multi-rustics and red rustics comprise the wall behind the office. Stand C, 58.)

Designed by Gordon Cullen, the stand of **The Carter Group of Companies,** Poole, Dorset, deals with the application of tiles in industrial buildings, pubs, housing, and other special uses. In the industrial corner there are white glazed tiles, and a simple decorative technique has been employed on them—a figure being drawn in brushwork in overglaze process. Exterior tiles are used in glossy enamels, and tube line decoration is also employed. An interesting detail is the hand-moulded letters formed by moulding rough clay into three-dimensional shapes. For the domestic corner, a wall sketch indicates the ways in which tiles can be utilised in the home. This is carried out mainly in hand painting in the overglaze process, but some of the drawing is also done in tube line. The decorative tiles are hand printed, and an application of plain matt surface tiles is also shown. A number of panels are arranged to show tiles of different colours and types against backgrounds of other materials. (Stand D, 85.)

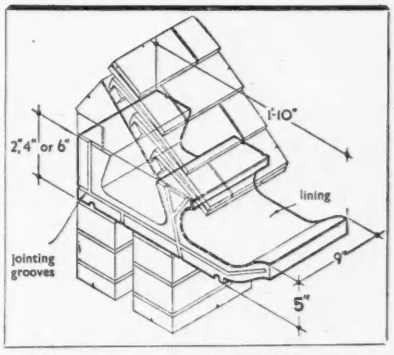
The "Acme" clay roofing tiles featured by **G. H. Downing and Co., Ltd.,** Brampton Hill, Newcastle, Staffs, include smoothfaced roofing tiles as well as sandfaced tiles in various colours, made under patented process to ensure permanent colours and a permanently sanded surface. Fittings in colours to match the tiles are also displayed, together with Staffordshire Red and Blue engineering bricks and various types of facing bricks. Various types of hollow blocks for partitions and floors can be seen. (Stands G, 152 and 153.)

The two-storeyed stand of the **Eastwoods Group of Companies** (parent company: Eastwoods, Ltd., 158-160, City-road, EC1) has been designed by Stillman and Eastwick-Field, AA.RIBA, and emphasis is placed on the display of the Group's heavy manufactures: bricks, cement, aggregates, concrete products and roofing tiles. Ten varieties of brick are displayed including Flettons, both plain and facing; with Stock bricks including a Sussex-type Stock. Five panels of concrete tiles in plain and interlocking types in a range of permanent colours are exhibited externally, and a display on the first floor of the stand is of the recently introduced "Grovebury" double-pan interlocking tile which is suitable for laying at low pitch. A film unit on the stand depicts in colour the company's production processes. (Stand G, 154.)

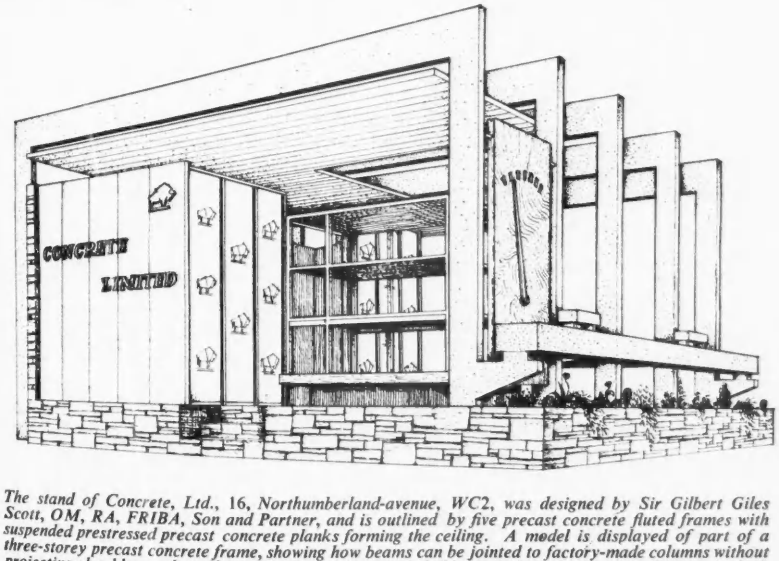


The "Multibloc" handling system is being featured by its UK concessionaires, Alan R. Davies, 20 Whiteladies-road, Bristol 8. This system covers all stages in the manufacture of building blocks from mixed aggregate. Mass-produced, the blocks are mass-handled in units of increasing size, a grab finally depositing them onto transport in compact loads of 1 cu. yd. The system includes a mobile blockmaking machine (shown above) which is understood to produce 1 cu. yd. of building blocks every six minutes, about 12-15 tons of solid concrete blocks per hour. A feed truck, lift truck, motorised carrier truck and lifting grab are also featured. (Stand D, 70.)

Their "Ciment Fondu" aluminous cement is being featured by **Lafarge Aluminous Cement Co., Ltd.,** 73, Brook-street, W1. The name of "Ciment Fondu" is primarily known as a cement which makes rock-hard concrete within one day, possessing complete immunity from attack by mineral sulphates and high resistance to other chemicals. It also has marked refractory properties, and when mixed with a refractory aggregate such as crushed fibrebrick produces refractory concrete, suitable for repairs and renewals either *in situ* or as special shapes. (Stand D, 78.)



A display window on the stand of Finlock Gutters, Ltd., 25, Frant-road, Tunbridge Wells, Kent, exhibits their standard gutter types, such as the type "G" shown above, as well as a sprocket unit introduced last year. These items are also shown in conjunction with tiled roofs for detailed study in position, and a demonstration is given of the use of the rear troughs of all their products in forming reinforced concrete lintols over openings. Of particular interest is a 20-year guaranteed aluminium/hot bitumen lining laid by the company's own operatives. (Stand T, 354.)



The stand of Concrete, Ltd., 16, Northumberland-avenue, WC2, was designed by Sir Gilbert Giles Scott, OM, RA, FRIBA, Son and Partner, and is outlined by five precast concrete fluted frames with suspended prestressed precast concrete planks forming the ceiling. A model is displayed of part of a three-storey precast concrete frame, showing how beams can be jointed to factory-made columns without projecting shoulders or haunches, and how windows and cladding are fixed direct to the frame. A plank floor—the latest addition to the "Bison" range—is also shown. This is semi-in situ, consisting of thin prestressed concrete planks with in situ topping. A full-scale mechanically-operated load test is carried out continuously, to show the effect of loading and unloading. (Stand B, 31.)

Their "Phomene" building processes are being displayed by the Cellular Products Division of the **Pyrene Co., Ltd.,** 9, Grosvenor-gardens, SW1. The light concrete process offers a wide range of densities, providing a fair degree of strength, or insulating qualities of high standard. Close control over the density enables an exact selection to be made. "Phomene" light con-

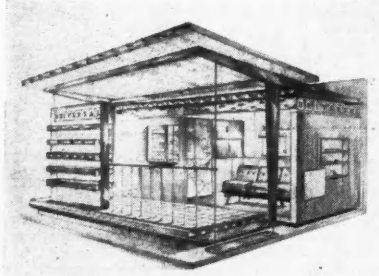
The exhibit of the London Brick Co., Ltd., represents part of a typical multi-storey framed building for offices and flats. Some ways in which "Phorpres" bricks and hollow clay blocks can be used as external cladding in partitions, and for floor construction, are demonstrated. In order to show that these products are equally suitable for load-bearing construction, a 200-ton compression testing machine has been installed on the stand and is being used to test bricks, blocks and brickwork. The exhibit has been designed by John R. Harris, ARIBA. (Stand E, 97.)

crete is understood to have no effect on steel, and can be reinforced whenever required. A mortar plasticizer which enables clean "sharp" reliable sands to be used for rendering and jointing mortars is also on view. It enables the cement content to be reduced with no loss of "fatness" or workability, thus eliminating serious shrinkage cracking. (Stands 497 and 499.)

Redland Tiles, Ltd., Moorhouse, Nr. Westerham, Kent, a division of the Redland Holdings Group, have this year constructed their stand almost entirely from products of the group's associated companies. The building and ornamental walls and arches are constructed with rose red facing bricks from the Bursledon Brick Co. and the roof and gable ends are clad with Redland tiles. The Redland "50" tile used on the roof has a traditional appearance and is understood to combine all the advantages of single-lap tiles, and to offer great savings both in direct and indirect costs. The Redland standard 15 in. by 9 in. interlocking tile is displayed, together with a selection of concrete tiles. A display panel shows the complete range of Redland tiles—all of them guaranteed for 50 years. (Stand E, 99.)

A comprehensive range of their sanitary equipment is shown by **Shires and Co. (London), Ltd.,** Greenbottom Works, Guiseley, Yorks. Of particular interest is the "Lynx" range of cisterns in moulded black plastic, and white and coloured earthenware. The "Lynx" is claimed to have a smooth, quiet action and a powerful flush. It cannot rust or corrode. The Kingfisher polythene syphon mechanism, which is incorporated in the company's cisterns, is shown separately on the stand, as well as the "Polyfloat" moulded plastic cistern float. A range of compression fittings suitable for use with "Shirene" and copper tubing is also on view. (Stand N, 277.)

The two-way reinforced concrete floor marketed by **Smith's Fireproof Floors, Ltd.,** Imbercourt, East Molesey, Surrey, is on view, and comprises patent hollow concrete blocks with blind ends, placed in pairs, permitting the use of reinforcement in both directions to support all types of loading. These floors, light in weight, are suitable for long or short spans, and are capable of carrying high point-loads. The precast hollow concrete tiles provide for a true and continuous soffit with a good key to facilitate economy in plastering costs. The Trianco steel telescopic centres on which these fireproof floors are constructed are also displayed. (Stands P, 294 and 295.)



The stand of the Universal Asbestos Manufacturing Co., Ltd., 8, Upper Grosvenor-street, W1, has been designed by J. V. Hutchings, and is constructed from the various forms of asbestos cement made by the company. Introduced since the last Exhibition is an insulated hollow decking as well as a battened decking system. A selection of the company's roof cladding, rainwater goods and ventilators is also on show. (Stand 0, 283.)

Cladding; Insulation; Floorings

In addition to "Weyroc," the **Airscrew Co., and Jicwood, Ltd.,** are exhibiting three new products. "Gold Label Weyroc" is understood to be lighter and stronger, and contains a special wax emulsion making the board water-repellent, and therefore suitable for high quality veneering. "Weydec" is a plastic-surfaced "Weyroc" board with a decorative melamine face in a variety of patterns and colours. Its plastic backing helps to ensure maximum resistance to warping and distortion and the material is structural as well as decorative. The third new product is "Hardec," a plastic-surfaced hardboard with a decorative melamine face which can be supplied in a variety of patterns and colours. This also has a plastic backing and can be used direct for surfaces where a hard-wearing finish is requpired. (Stands 468, 470 and 472.)

The Armstrong Cork Co., Ltd., Honeypot-lane, NW9, have a double-decker stand this year, and all their flooring products are on show, including the new vinyl-asbestos "Accoflex" tile. There will be a complete range of "Accotile" and cork tiles and samples of new adhesives for linoleum and floor tiles. The new Accoflex "Inset" tiles displayed are produced in a wide range showing animals, numbers and special motifs. They have been designed for particular use in schools, nurseries, kitchens, hotels and restaurants. If required, a tile can be cut to an individual design which allows trademarks, insignia and school emblems to become an integral part of the floors of entrance halls or showrooms. (Stand C, 46.)

Their product, "Undulite" translucent corrugated sheeting, is being featured by **Ashdowns, Ltd.,** Knowsley-road, St. Helens, Lancs. This structural corrugated plastic is reinforced with fibreglass for extra strength, and is made in standard sizes and shapes for installation on corrugated roofs and walls. Exceptionally light in weight, it needs no special frames or flashings. The sheets can be drilled and cut to odd sizes with ordinary tools, then bolted, clipped or nailed to the building's structural members. They are understood to be shatterproof and unaffected by industrial atmosphere, and the makers state that although not fireproof "Undulite" is not readily ignited and burns slowly, being easily extinguished. (Stands 488 and 490.)

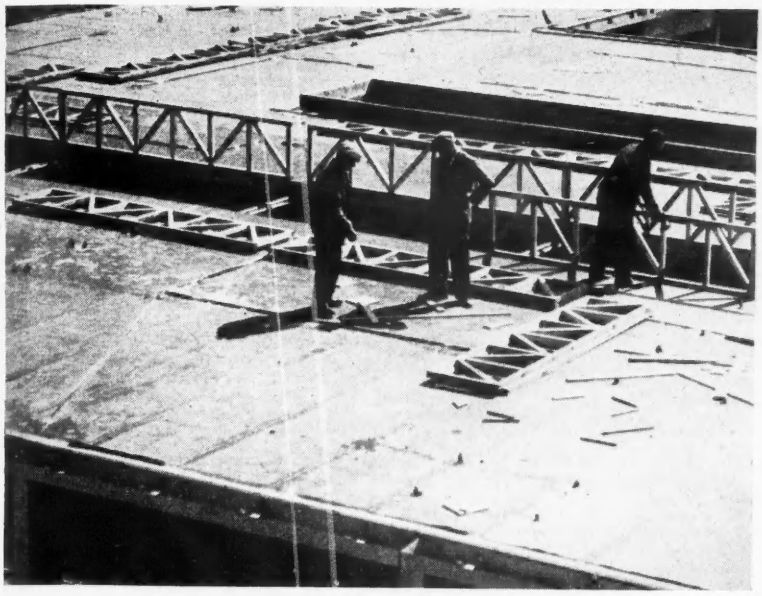
The display of **S. Bennett and Son (Wood Flooring), Ltd.,** Queen's Park-road, Harold Wood, Romford, Essex, includes a range of hardwood block flooring—kiln dried and manufactured as a tongued-and-grooved interlocking system for laying on sand and cement screed. Strip flooring is shown in hardwood 1 in. nominal thickness, tongued-and-grooved on sides and with matched ends for laying on joists or fillets. Parquet flooring for laying on existing wooden floors is featured as well as cork flooring, rubber tile flooring and thermoplastic and PVC tiles. (Stands 461 and 463.)

The stand of **Berite, Ltd.,** Lammas-road, Lea Bridge-road, E10, features their plastic-faced board manufactured in ⅛-in. and ¼-in. thicknesses, as well as "Berlam" in 1/20-in. thickness. The low cost of this board is understood to enable it to be used where plastics are desirable but where previously the cost had been too prohibitive. Patterns are produced in five linen colours, but samples on the stand indicate new patterns which will be available in the near future. (Stand 413.)

The stand of the acoustical division of **Burgess Products Co., Ltd.,** PO Box 11, Hinckley, Leics., is constructed as a lounge, the walls of which are attractively constructed from alternative slatted wood and glass panels. The roof is of a sine-wave shape mounted on slended poles to which is attached a "floating" acoustical ceiling. This ceiling is constructed from the new 24-in. module Burgess acoustic tile which offers increased accessibility to concealed services. A 2 ft. by 1 ft. acoustic tile is also on view, being utilised as wall panelling finished in 12-in. square pastel shades. Several forms of fluorescent and tungsten light fittings designed for easy fixing and incorporation in Burgess acoustic ceilings are on display, as well as the Burgess/Sulzer heated acoustic ceiling. This incorporates acoustic tiles with radiant heating by means of pipe coils fixed independently from the tiles. The "Multivent" system of controlled draughtless ventilation can be seen, as well as acoustic ducting. (Stand 508.)

A 2-in. thick curtain wall understood to possess twice the insulation value of an 11-in. cavity brick wall internally plastered is shown on the stand of the **Cape Asbestos Co.,** 114-116, Park-street, W1. It is made of "Asbestolux," an insulation board comprising amosite asbestos and kieselguhr—steam-cured so that the bond is permanent and inorganic. Also displayed is a removable suspended ceiling giving 4 hours' fire protection to floors and weighing just over 2 lb. per sq. ft. It consists of "Asbestolux" with a "Rocksil" rock wool mat laid on the back of the panels, and the design is based on a recent four-hour fire test at the Fire Research Station. Two other structures on the stand show the design of a prefabricated ½-in. thick column casing, giving one-hour fire protection to stanchions; as well as a new fire-resisting ceiling providing variable acoustic absorption as required. (Stand C, 42.)

The translucent roofing and decorative sheet known as "Cascalite" is being exhibited by **Cascelloid, Ltd.,** a division of the British Xylonite Co., Ltd., Abbey-lane, Leicester. This shatterproof fibreglass reinforced polyster cladding is intended for admitting diffused light to factories, offices and homes. Decorative profiles in pastel translucent colours are available for wall panelling, bar fronts, shower screens and awning covers, and the stand shows all types of these sheets in the full colour range. Technical testing apparatus is available so that visitors can test for themselves such characteristics as impact strength, roof loading or light transmission. (Stand 540.)



A layer of ¾ in. "Plimberite" boarding was used in decking the roof of the new Radio Research Station, Datchet, and shown above is part of the 45,000 sq. ft. roof under construction. Covered with three layers of bituminous felt, ½ in. "Plimberite" was also used for covering the roof heating ducts, over timber stud framework. This building board is produced by British Plimber, Ltd., 19 Albert Embankment, SE11, who are displaying a variety of typical applications such as flooring, partitioning and cupboards. Plastic-surfaced board is featured as a flooring material, and a full range of decorative finishes is shown for various purposes. The sides of the stand office are constructed on the "Rebond" partitioning system. (Stand H, 178.)

The firm of **Compactom, Ltd.,** Oxgate-lane, Cricklewood, NW2, specialise in the prefabrication and erection of dry construction demountable partitions, and their exhibit includes their various materials and finishes. The company's system of partitioning, known as "Compactioning," is not based on the sole use of any one material. They can therefore offer a scheme best suited to the requirements of design, finish, thermal and acoustic qualities and cost. The stand itself has been fabricated and erected by the company, and also displays their fabricated w.c. cubicles and built-in fitment units. (Stand C, 60.)

The Plastics Division of **Thomas De La Rue and Co., Ltd.,** Morris House, Jermyn-street, SW1, are exhibiting the various methods of application of "Formica" laminated plastic. Four separate sections show typical installations in kitchens, bathrooms and shop interiors. The company have now extended their range to include plain colours, which are being shown for the first time at the exhibition. These include French Blue, Beige, Citron Yellow, Cherry Red and Charcoal Grey, and are expected to be available early in the new year. (Stands 636 and 637.)

The principal exhibit on the stand of **Dohm, Ltd.,** 167, Victoria-street, SW1, is "Dohminsular"—a wall-facing material for use where plaster would normally be employed. It is supplied as a dry powder and mixed with water on site, and can be applied to brick, breeze block or other wall surfaces. Its surface can be decorated by any method usually used for plaster, and it is understood to provide thermal and acoustic insulation of a high degree without any additional labour costs for application. This material is also available as a roofing and floor screed, and can be supplied in a refractory insulating grade for use on the cold-face lining of furnaces. Also shown is "Dohmlag" insulating pipe covering, which provides an insulant for hot pipes and other surfaces. Samples of raw materials and fabricated products such as polythene piping are on view, as well as "Flexi-mould"—a mould for casting intricate friezes and ceiling decorations in plaster. (Stand L, 240.)

The products displayed by **Fibreglass, Ltd.,** include thermal and sound insulating materials for the structural insulation of houses and industrial buildings. These include bitumen-bonded materials for use in walls, ceilings and floors, as well as a sound-deadening quilt for use in "floating floor" construction. Demonstrations are given as to how domestic attics may be insulated against cold or heat and how tanks and pipes may be protected from frost by Fibreglass rigid sections, wired mattresses and sewn sheet. These materials are completely glass and are understood to be rot-proof, fire-resistant and completely free from odour. (Stand L, 241.)

The stand of **Fisons, Ltd.,** Harvest House, Felixstowe, Suffolk, has been constructed in two equal units facing all directions, two walls in each section being built with "Burwell" White Gault facings and two with "Burwell" Flushed Gault facings, the emphasis being on showing large expanses of brickwork in preference to smaller panels. "Burwell" foundation gaults are incorporated in the bottom three courses of the stand. The jointing between the bricks is of a 1: 2: 9 cement, lime and sand mix, throwing the natural white properties of the bricks into prominence. (Stand C, 52.)

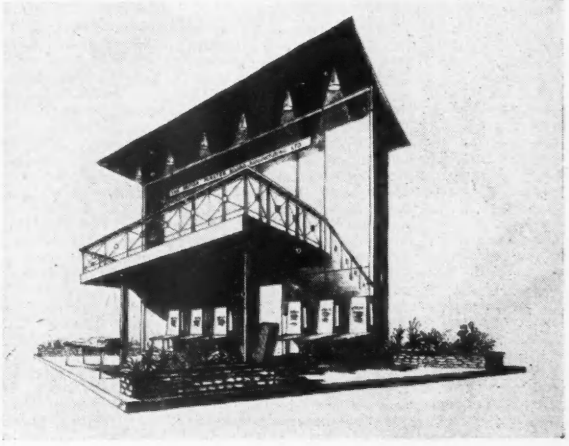
Their gypsum building products are being featured by the **Gyproc Products, Ltd.,** Singlewell-road, Gravesend, Kent. The different fire resistance gradings of various floor and ceiling constructions, incorporating "Gyproc" plasterboard and plaster products are shown in model form, together with the application of their insulating wallboard as a reflective insulator. Acoustic and slotted acoustic tiles are displayed, as well as tapered-edged wallboard and joint filler. "Gypunit" Panels, consisting of plasterboard faces with cellular core, are on view. These are available for either demountable or permanent, single or double-leaf partition constructions. (Stand G, 149.)

Two new grades of "Lattenax" waterproof membranes are introduced on the stand of **A. Latter and Co., Ltd.,** 43, South End, Croydon. These are their grades TR.1 and X.10, which, in addition to the previous qualities of reinforced "Lattenax," possess thermal, reflective and acoustic properties. The company's range of waterproof building papers conform to BSS 1521, class A and B, and are suitable as insulation linings as well as an aid to concrete shuttering. (Stand 551.)

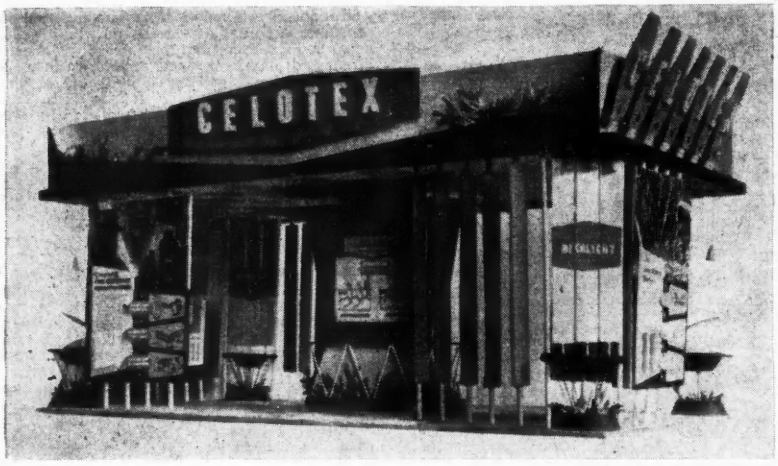
The stand of **Marley Tile Co., Ltd.,** London-road, Riverhead, Sevenoaks, Kent, shows their standard tiles, "Marleyflex," the recently introduced "Harlequin" and wall tiles, "cut-out" tiles and accessories. The floor covering, "Marleytred," is also on show, together with "Marleythene" plastic tubing and two new ranges—"Parquet" and "Corkstyle." The concrete products displayed include roof tiles, concrete paving, wall units, garages and industrial buildings, as well as "Eagle" beams. "Marlith" wood-wool building slabs are also shown. (Stands H, 181 and 182.)

The stand of **Masonite, Ltd.,** Bevis Marks House, Bevis Marks, EC3, portrays various types of their products, including both standard and tempered "Presdwood." This sheet hardboard is manufactured from Swedish timber, reduced to chips and then exploded into fibres. The process eradicates any knots and defects, and gigantic presses process the material into large sheets of grainless wood. A stove-enamelled plastic melamine process on standard "Presdwood" is available in colour and imitation tiling. Any colour can be obtained against special orders. A new imitation leather finish on tempered Masonite is also manufactured, and is particularly suitable for decorative work. (Stand H, 187.)

The stand of **North British Plastics, Ltd.,** Blaydon-on-Tyne, depicts a small kitchen scene, cocktail bar and bathroom incorporating the company's decorative wall panelling materials. These "Panalac" and "Challenge" quality panels are available in a range of attractive plain colours, wood grains and marble designs. The melamine/alkyd stoving system applied to base materials such as hardboard, laminated plastic and aluminium provides a hard, durable surface resistant to steam or spilled hot and alcoholic liquids. The sheets are available in a range of standard sizes in plain sheet or with imitation tiled patterns. The company are also displaying a melamine-surfaced laminated plastic sheet which should be on the market by the beginning of January. (Stand 541.)



Designed by Ronald Dickens, MBE, FSIA, the stand of the British Plaster Board (Manufacturing), Ltd., 82, Piccadilly, W1, demonstrates the use of "Paramount" dry partition as an internal lining to curtain walling. The suspended ceilings are formed by the "Paraclip" system, while the uses of acoustic plaster are shown. A second stand features a full-size model of one of three demonstration low-cost bungalows at Woolwich, designed by the company's consulting architects, Messrs Brunton, Baden Hellard and Ptnrs. AA.RIBA. (Stands 626 and 627, 650, and E, 94.)



A full range of products are being exhibited by Celotex, Ltd., Stonebridge Park, North Circular-road, NW10, including a recently developed perforated hardboard and a selection of insulating boards made from sugar cane fibre, which deters attacks from vermin by its barb-like qualities. This range includes water-resistant " Flexcell " for all forms of concrete construction, as well as boards finished in smooth white " Highlight." A selection of " Acousti-Celotex " tiles, also with a " Highlight " finish, can be inspected. (Stand C, 55.)

Continuous demonstrations are being given by **Nuralite Sales, Ltd.,** 3-4, Whitehall-place, Gravesend, Kent, of their product " Nuralite," showing in particular the application of this thermo-plastic material to roofing, flashings, gutters, etc. Supplied as an alternative to more expensive roofing metals, the material is claimed to be permanent, waterproof and particularly suitable where buildings are near to the sea. It is rigid when cold, but with moderate blow-lamp heat can be formed into various shapes—permanently retaining the desired shape when cool. It can be cut and bent, and has the additional advantage that pieces may be joined together to form a homogeneous weld. (Stand K, 230.)

Among the " Sisalkraft " range of reinforced waterproof building papers exhibited by **J. H. Sankey and Son, Ltd.,** Aldwych House, Aldwych, WC2, are two new metal-faced grades. One, copper armoured " Sisalkraft," comprises a backing of creped Kraft paper reinforced with crossed Sisal fibres, combined with bitumen to a sheet of electro-deposited pure copper. It can be used for light and concealed flashings or dampproof courses and membranes. The other, " Sisalation " reflective thermal insulation, consists of standard " Sisalkraft " lined on one or both faces with highly burnished aluminium foil. This is used chiefly in cavity construction because an airspace is essential for the proper functioning of the bright metallic surfaces in reflecting heat. Also on view is a wide range of hollow building blocks, bricks, floor tiles and refractory products. (Stands 500 and 502.)

Featured on the stand of **Semtex, Ltd.,** Semtex House, The Broadway, NW9, are a wide range of " Semastic " decorative tiles, " Vinylex " tiles, " Vinyl " asbestos tiles and Dunlop rubber flooring (both standard and ribbed). Jointless fleximers and cork tiles are also on view, together with high-grade decorative linoleums. The Semtex industrial division also contributes a comprehensive range of anti-corrosive cements. (Stand E, 101.)

A representative selection of wallboards, surfaced and plastic-faced boards, chipboards and mouldings are displayed on the stand of **E. Sherry, Ltd.,** Homerton Bridge, E.9, and their associated company, **Sherry and Haycock, Ltd.,** who are exhibiting for the first time at the Building Exhibition. The flooring of the stand shows a selection of hardwood flooring blocks, as well as other types of flooring, including grooved and secret nail strips. The " Celcure " pressure impregnation process against insect or fungi attack is featured. This mixture of copper-sulphate and chromates is claimed to give long-term protection against all fungi, including dry and wet rot, and wood-destroying insects; as well as to resist being washed out even after many years' immersion in running water. (Stands 332.)

The use of their decorative laminated plastics in building work and interior design is a feature of the stand of **Warerite, Ltd.,** 12, Grosvenor-gardens, SW1. Its walls are panelled with full-sized 8 ft. by 4 ft. sheets in various patterns and colours, and extruded plastics and aluminium fixing sections for Warerite materials are also on show, together with examples of secret fixing. Various items of furniture on the stand have their working surfaces covered with Warerite, and examples of the incorporation of original designs, notices and maps in the surface of Warerite can also be seen. The original art-work is permanently incorporated beneath the plastics surface and so protected from dirt and staining. Another feature is a display of " Handy Panels "—in which the plastics veneer is already press-bonded to a 4-mm. plywood backing. These can be used in the frame method of construction for doors and kitchen units. (Stand D, 81.)

Surface Treatments

The " Aerolite " synthetic resin glues produced by **Aero Research, Ltd.,** Duxford, Cambridge, are featured in the actual structure of their stand, which incorporates resin-bonded roof trusses. Other structural materials and finished products such as flush doors are displayed to show the uses of " Aerolite " glues in the industry. " Aerodux " 185 resorcinol formaldehyde adhesives are also demonstrated for applications requiring boiling water resistance. A recent addition to the company's range of adhesives is " Araldite," a two-component epoxy resin for bonding glass, metals and nearly all other materials in common use. The firm are also introducing at the Exhibition a new synthetic resin floor sealer for the protection of wood floors. (Stand 602.)

A recent development of their sealing strip is displayed by **B. B. Chemical Co., Ltd** Ulverscroft-road, Leicester. Known as " Prestik " builders' sealing strip, it is designed to meet the demand for a joint sealing compound easy to apply and requiring no special tools or equipment. It provides a ready-to-use water-resistant and pliable compound which can be moulded to accommodate variations in the joint to be filled and will take paint. Also on view are their " Bostik " adhesives for the fixing of tiles, wallboards, laminated plastic sheets, rubber, cork and lino floorings. (Stand 631.)

The " Bergermaster " range of paints marketed by **Lewis Berger (Great Britain), Ltd.,** Morning-lane, Homerton, E9, can be seen in their display, and includes gloss enamel, emulsion paint, satin flat enamel and eggshell lustre enamel. The emulsion paint may be applied direct over new and old plaster, building boards, cement rendering, brickwork, and to previously distempered surfaces, and is suitable for both interior and exterior application. It is understood to be quick drying and to have a good washability. (Stand Q, 311.)

The theme of the stand of **Berry Wiggins and Co., Ltd.,** Field House, Breams Buildings, Fetter-lane, EC4, is the versatility of bitumen in both domestic and industrial building. The new products exhibited include special bitumen emulsion for mixing with and waterproofing gypsum plasters, and for use in making precast waterproof panels. The use of these emulsions does not delay the setting time and does not affect the expansion of plaster mixes on setting. Also shown is " Aquaseal 7," a bitumen emulsion for mixing in vermiculite screeds to prevent absorption of water by the vermiculite after setting and before the roofing, such as building felt, is laid. " Kingsnorth 1752A " is a bitumen plastic compound designed as a sealing material for use between the individual panels comprising curtain walling. It will withstand sun temperature without creep or flow, and will not become brittle at low temperature. (Stand A, 1.)

A dual-purpose primer sealer recently introduced by **Blundell, Spence and Co., Ltd.,** 9, Upper Thames-street, EC4, is exhibited. This is not only an alkali-resisting sealer but also an anti-suction wall primer. Four possible results of imperfect surface preparation — colour change, saponification, embrittlement and loss of gloss—are illustrated, as well as surfaces on which the new sealer can be applied. " Pammistic " plastic emulsion coating—a decorative finish for exterior surfaces, is also shown, and three sections of wall demonstrate how this coating stands up to the effects of the sun, smog and sea air when applied direct to exterior surfaces. " Pammel " is featured as a complementary gloss enamel for wood and metal work, and the colour ranges of " Pammatt " flat enamel and " Pammelette " eggshell enamel are displayed. (Stands S, 339 and 340.)

This textured rubber sheeting is used to produce a decorative finish on concrete, and is one of a range of such sheetings displayed by the British Rubber Development Board, Market Buildings, Mark-lane, EC2. To produce both structural and decorative finishes, the sheeting is inserted in the casting frames, and peeled away from the concrete's face when it has set. A wide range of figuring is available, and other applications of rubber in building are also on display. (Stand B, 34.)

The exhibits of **British Lead Mills, Ltd.,** Byron House, St. James-street, SW1, include " Seculate " anti-condensation compound which is understood to differ from other anti-condensation paints in that it creates an insulating barrier between the atmosphere and the applied surface. A wide range of hard gloss enamel and plastic emulsion paints for domestic and industrial uses

is on view, as well as all kinds of the company's lead to BS Specification, including lead sheet and pipe burning rod; lead traps, sleeves and flashings. (Stand 504.)

Featured by **A. A. Byrd and Co., Ltd.,** 210, Terminal House, SW1 is their "Tricosal"—a liquid medium for the integral waterproofing and hardening of concrete and cement mixes. Demonstrations are given of its positive and permanent waterproofing to brickwork, as well as its uses in the densification, acid and oil resistance of industrial floors in concrete and granolithic. Also shown is "Neocosal," a colourless liquid applied to the surface of brick, concrete or stone which penetrates into the surface and acts as a water repellent. The remainder of the display includes "Florosal"—a surface-hardening and dustproofing liquid applied to existing concrete, stone and cement surfaces to give protection against dusting, acids and oils and increase resistance to wear and atmospheric disintegration. (Stand T, 349.)

Featured by **Cafferata and Co., Ltd.,** Newark-on-Trent, Notts, is their "Murilite," a combination of "Murite" gypsum plaster and expanded "Perlite," a light aggregate. The latter is less than one-tenth the weight of sand, and when mixed in the correct proportions with "Murite" gypsum plaster produces a material which in its finished state is less than one-third the weight of sanded plaster. "Murite" gypsum plaster is manufactured in five grades, and is shown applied to various surfaces. Also on show is "Thistle" acoustic plaster, a pre-mixed material which is understood to give good sound absorption at low cost. (Stand B, 38.)

The display of **T. and W. Farmiloe, Ltd.,** Rochester-row, Westminster, SW1, features their wide range of products, including "Nine Elms" paints. The main feature of the stand is a 16-ft. high metal casement, which has been glazed with Nine Elms MCP, a metal casement putty only recently introduced. Other products on show include a power-driven paint roller, sheet lead and lead pipe, and glass. (Stand R, 329.)

The display of **R. Gay and Co.,** 127-131, Regent-street, W1, features two decorative products ("Impenetrable" paint and "Gaymura" emulsion paint), together with the application of colour related to a new range of 101 shades. "Impenetrable" paint is claimed to have improved brushability, flow, higher gloss and colour retention; while "Gaymura" emulsion paint is available in a PVA-based, interior quality, or an alkyd-based exterior quality. "Colour under Control" is a documentary film in full colour on the development of colour schemes and the applied use of colour. It is being shown in the cinema at Olympia throughout the exhibition. (Stands 537 and 539.)

The exhibit of **Goodlass, Wall and Co., Ltd.,** 179-185, Great Portland-street, W1, shows their range of paints and finishes. For superior decorative and hard-wearing finish in public buildings as well as for the decoration of private houses, there is "Combinol" lustre finish. This paint is understood to resist steam, oil fumes, ammonia and hot water, and to be washable. "Combinol" gloss paint is shown, and is made in a range of 42 colours, as well as black and white. "Goodlass" stop-rust primer undercoating can also be seen with a range of other paints. (Stands 492 and 494.)

The plastering products of the **Gypsum Mines, Ltd.,** Mountfield, Robertsbridge, Sussex, are displayed on a stand constructed of a variety of materials to which plaster is most commonly applied, including brick, breeze, metal lathing and plasterboard. Methods of application and the effects obtainable are demonstrated, as well as "Sirapite" Browning, a quick-setting undercoat plaster for backing coats, and also "Belpite" Browning. These are shown in two-coat and three-coat work. Other examples show single-coat applications of board finishes on plasterboards and wallboards. A new product is "Siralitag," a light-weight plaster. This consists of hemi-hydrate plaster and exfoliated vermiculite, ready mixed, and has been developed for thermal insulation and sound absorption. (Stands S, 335 and 336.)

The main emphasis in the display of **Hangers Paints, Ltd.,** Hull is given to their "Floralac" and "Fabriguard" paints. "Floralac" hard gloss (alkyd based) enamel paint has been approved by the London County Council, Birmingham Corporation and other authorities, and is available in standard gloss and semi-gloss shades. "Fabriguard" emulso-plastic (PVA) paint is available in the standard matt shades and in coloured porcelain gloss and clear glaze for external work. Both paints are also supplied in the Munsell (Archrome), BSS, Government and RIBA series of colour. (Stand 641.)

A new preservative for vacuum/pressure impregnation of timber, known as "Tanalith C," is displayed for the first time by **Hickson's Timber Impregnation Co. (GB), Ltd.,** of Castleford, Yorks. It has been developed as the result of research into the problems of attack by soft rots and it is claimed that it has the highest fixation (97 per cent.) of any water-borne preservative available in the world. Apart from normal use, it is suitable for situations where leaching and staining would normally create problems. Sections of untreated soft rotted and sound tanalised louvres are displayed, together with a garden chair made of Tanalith "C" treated beech instead of traditional teak and examples of flameproof timber treated with "Pyrolith" preservative. (Stand C, 56.)

International Paints, Ltd., Grosvenor-gardens House, SW1, are exhibiting at the Building Exhibition again after a lapse of many years. Among the items on show are panels painted in "Sunlight" enamel, "International" hard gloss paint, "Interlight" emulsion paint and the associated primers and undercoats. The main emphasis of the display is on the service such as technical advice, after-sales service on site, and help in the preparation of specifications and colour schemes, that the company has to offer. (Stand 564 and 566.)

Models are demonstrated on the stand of **Kerner-Greenwood and Co., Ltd.,** King's Lynn, Norfolk, to show the qualities of their "Pudlo" product in making cement waterproof. The models include various types of concrete tanks waterproofed throughout their entire thickness, and renderings applied to tanks constructed of porous materials such as coke breeze. Also shown is the "Feusol" fire cement manufactured by this company, demonstrated by practical models showing the variety of uses for this product in both domestic and industrial fields. (Stand S, 338.)

This specially-designed gun is used in the application of "Asbestospray"—an insulating mixture of asbestos and other fibres sprayed with water and compressed air to a rubber-based primer. Used as both a fire-resistant insulation and an anti-condensation medium, "Asbestospray" is particularly suited for exposed roof trusses and other steel work, its advantages including the absence of joints and the levelling of irregularities. Other forms of insulation featured by William Kenyon and Sons, Ltd., 50, Bloomsbury-street, WC1. include "MetaMica," "Vermiculite," and cork insulating products. (Stand K, 224.)

Illustrated by practical exhibits on the stand of **Philplug Products, Ltd.,** Wembley, Middx., are applications for PC 4 and PC 3 cold caulking compounds, including the jointing of cast-iron pressure mains, drain and soil pipes of various types, cast iron and concrete tunnel segments, as well as the fixing of balustrades. Shown for the first time is the impregnated GEL grummet, which provides an improved method of water proofing bolts used in tunnel segments and other applications. A separate section features a range of fixing devices and tools, including a new "studbolt" which provides a simple means of fixing. (Stand K, 225).

In addition to their plastic fire cement and "Fixatile" tile-fixing cement, **Purimachos, Ltd.,** St. Philip's, Bristol 2, are displaying three new products. One of them, "Brella," is a colourless liquid waterproofer for use on internal or external walls. "Brelkos" cement waterproofer is supplied in powder form; and the third, "Corrokos," is a rust inhibitor for use in central heating systems. (Stand 503).

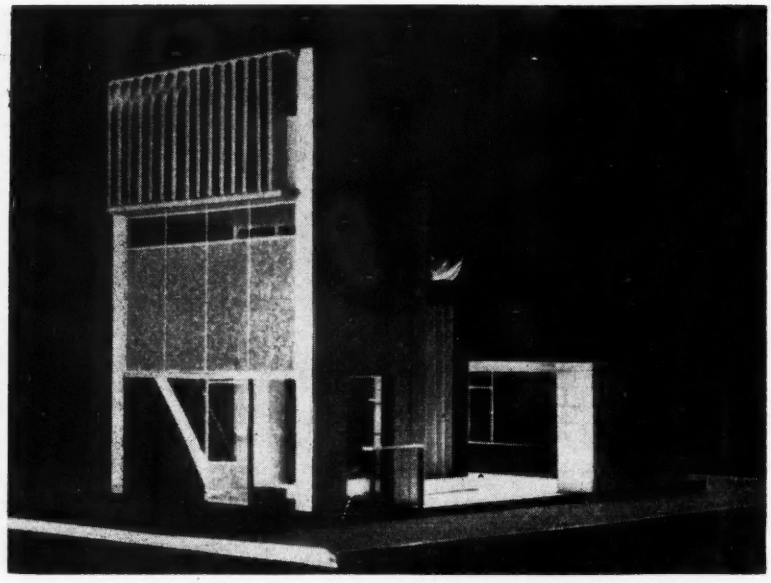
The stand of **Pyrok, Ltd., 401-404** Montrose-avenue, Slough, has been designed by Nigel Farrington, ARIBA, and features the "Pyrok" surfacing process. This process is understood to form a strongly-adhering, non-crazing coating that can be applied to practically all building materials and elements of structure. It has good thermal, fire-protection and anti-condensation properties; and can be sprayed through a patented gun to any thickness in consecutive mechanical operations, leaving a smooth or textured self-decorated surface, internally and externally. (Stand D, 80.)

The display of **Sealocrete Products, Ltd.,** Hythe-road, NW10, includes products for the waterproofing, colouring, hardening, decorating, and curing of cement, concrete, asbestos, and allied building materials, as well as waterproof, dustproof, oilproof and coloured granolithic floorings. A practical demonstration shows how existing dusty cement and concrete floors can be dustproofed, oilproofed and hardened by the use of Sealocrete concrete surface dressing; and various decorative finishes are illustrated. For structural waterproofing, "Bituseal" plastic filler can be seen forming a complete seal between iron work and concrete where iron pipes and metal fittings go through waterproof concrete structures. Among other items displayed are roofing compounds, wax polish in colours for floors laid incorporating "Sealantone" liquid colours; and waterproofing powder for semi-dry mixtures such as precast work. The new products being shown include a mortar plasticiser as well as "Sealoplas" plastic flooring compound. The latter can be laid by a trowel in one operation, no expansion joints being necessary. (Stand H, 191.)

Silexine Paints, Ltd., Richford-street, W6, show a timber preservative new to this country. Known as "Xylamon," this has already been in wide use on the Continent, and its exceptional penetrative properties are claimed to render pressure impregnation unnecessary, so that the timber may be treated on site and in such quantities as the job demands. Other sections of the stand are devoted to stone paints, gloss paints, and plastic emulsion coating, as well as a new water-repellant silicone preparation for proofing above-ground masonry. (Stand C, 43.)

The stand of **Tretol, Ltd.,** Tretol House, The Hyde, NW9, has as its most important item a film on the uses of Tretol "Morta-Mix," a mortar plasticiser. A technique for vertical and horizontal cold applied damp-proof course membranes is displayed, as well as a silicone waterproofer and anti-freezer. Display pieces include "Tretolin" paint, chlorinated rubber paint, "Chemiprufe" M 90 enamel and other protective coatings. A display is also given by the recently-formed subsidiary company, Tretol Associated Products, presenting part of the extensive range of flooring adhesives and flooring maintenance products developed by the parent company. (Stand H, 186).

The comprehensive range of products displayed by **Expandite, Ltd.,** Chase-rd., NW10, includes sealing compounds and fillers, as well as waterstops in rubber or PVC in sections to meet all jointing conditions. The main feature of the display is the new "Handiseel" gun kit for the application of the company's "Seelastik" all-purpose flexible sealing compound, available in cream or black. Made in pressed steel, this unit is essentially a low-cost tool for the smaller commercial user. It incorporates a simple trigger action by which the sealing compound is forced under pressure out of its nozzle and well into the joint or crack. "Handipak" refills are available, and can be quickly replaced into the gun. In addition, the company are featuring black bitumen/asbestos sealing compounds, concrete waterproofing agents and "Seel-a-Strip" non-hardening glass bedding compound. (Stand K, 227.)



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Doors and Windows

A comprehensive display of the latest developments in shutter doors and collapsible gates are featured by the **Bolton Gate Co., Ltd.,** Waterloo-street, Bolton, with a range of time- and labour-saving automatic controls. One multi-panel sliding door (shown for the first time) is constructed from 20 gauge "Zintec" panels. It is designed to give a flush finish and is capable of negotiating a very small radius. Another new exhibit is the "Dryvin" garage door electrical operating unit for automatically opening and closing side-hung garage doors, installed in a few hours. A further new development is a two-speed sliding door constructed from 16-gauge panels, with special link motion, size 5 ft. 4 in. wide by 7 ft. high; for modern passenger lift application. A hinged door of Pilkington's toughened glass is demonstrated with a fully-automatic photo-electric cell control. The compact control gear is placed overhead. Also shown are two patent shutter doors —one electrically operated with push-button control, the other hand operated, as well as a "Superfold" Vynide-covered collapsible partition. The leathercloth covering is fitted to both sides and is supplied in a variety of shades to match colour schemes. (Stand H, 184.)

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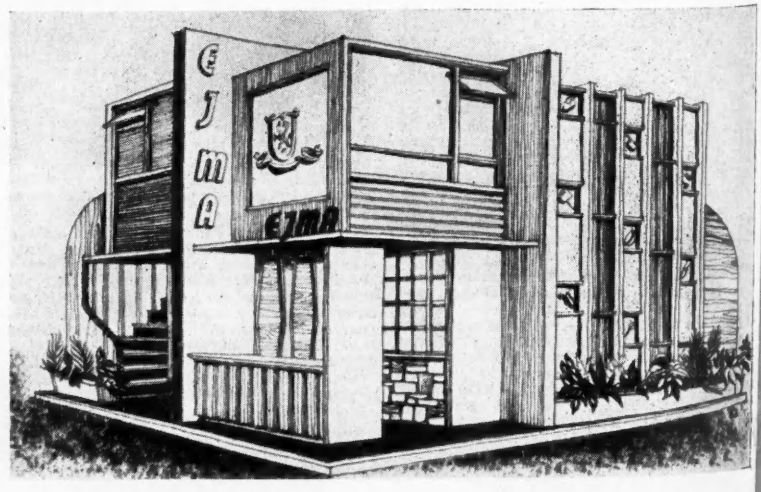
The exhibit of **Clarke Ellard Engineering Co., Ltd.,** Letchworth, Herts, demonstrates the space saving and other advantages of sliding doors, particularly as applied to houses and the domestic garage. A typical lounge and dining room are divided by a pair of sliding doors which disappear into cavity walls. A single sliding door on one side leads into an adjoining garage, one end of which is closed by multi-leaf sliding doors passing around a side wall. The other end of the garage is closed by a single-leaf door which is counterbalanced and opens to a horizontal position in the roof. Another area represents an L-shaped room which can be arranged into three distinct and separate shapes by means of a patented partition that will fold and slide in different directions as desired. (Stands 496 and 498.)

The "Concavo" flush door shown by **Crosby and Co., Ltd.,** Farnham, Surrey, is suitable for exterior or interior use, and is claimed to neither "ripple" nor warp. Tests have shown that the door maintains its appearance in conditions of extreme humidity and even in flooding. The "Concavo" door is a moulded flush door, and experiments have proved that internal bracings in the door are unnecessary. Without them, the natural expansion and contraction of the surface make the door more rigid and precludes any tendency for such changes to warp the door. With its slight concave surface, this door has a pleasing appearwood, to ensure a perfectly integrated board. material. (Stand B, 29A.)

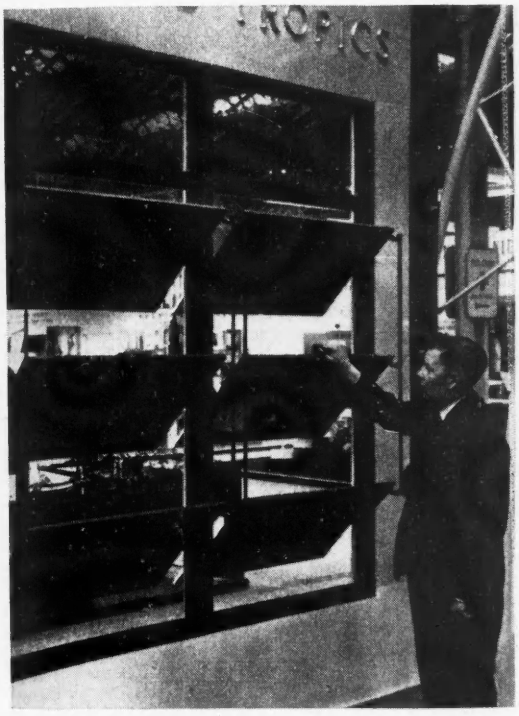
A recently-introduced range of doors is the main exhibit on the double-decked stand of **J. Gliksten and Son, Ltd.,** Carpenters-road, Stratford, E15. These doors have been designed to be in keeping with contemporary décor, and include plywood and hardboard-faced flush doors, veneered flush doors, external flush doors and hardwood panel doors with matching gates and garage doors. Oak gates and softwood doors are also included. These doors are shown against a background of "Glinex" structural panels, the latter also being shown in a suspended ceiling of special design. A number of hardwood panels and decorative veneered panels are included, as well as interior and exterior grades of plywood and "Hernite" hardboard and insulation boards. An interesting innovation is the working model of a timber-drying kiln on the stand. (Stand G, 144.)

Of particular interest on the stand of **F. Hills and Sons, Ltd.,** Norton-road, Stockton-on-Tees, is their new "Placarol" interior flush door core, which will shortly be available in the "Popular" and "Durador" flush doors. Consisting of hundreds of wooden spirals bonded with the plywood facings, the "Placarol" core is claimed to have a strength/weight ratio and stability hitherto unobtainable in semi-solid flush doors. The spirals provide an almost continuous and uniform support for the plywood facings, characteristic to that of a solid timber core, but with an appreciable saving in weight. Also on show is "Durette," a plastic-faced plywood recently introduced to the trade which is available in five colours and various thicknesses from $\frac{1}{8}$ in. to $\frac{3}{4}$ in. The decorative plastic finish is not just an ordinary surface application but is actually included in the veneer assembly during the manufacture of the plywood, to ensure a perfectly integrated board. (Stand S, 342.)

A selection of "Modolite" windows and door frames, including pivot-hung windows, are being featured by **H. C. Janes, Ltd.,** 183, High Town-road, Luton. Particular attention is given in this range to the large "picture"



The stand of the English Joinery Manufacturers' Association, Sackville House, 40, Piccadilly, W1, has been designed by T. Sibthorp, FRIBA, to show a representative range of "EJMA" standard joinery. In addition to the standard casement range of windows, a new range of landscape windows has been designed and the standard sash windows revised and improved. Two standard kitchen sink units for use with a fireclay or metal sink have been introduced, as well as a double-glazed window designed to allow for glazing with "Insulight." A new range of pivot-hung windows has also been prepared. (Stand F, 131.)



The louvred window shown here is intended for the tropics, and is being displayed by Henry Hope and Sons, Ltd., 17, Berners-st., W1, as part of their range of tropical windows and doors. A tropica ipanel unit is featured, designed for coupling at the sides or separated by pilasters, each unit one-storey high with louvres at top and bottom separated by casements. The company are also showing their "Windogrid" system of curtain walling for schools and other buildings, as well as a bronze window with leaded lights, such as was used for the Brunei Mosque, Borneo. (Stands D, 90 and 91.)

type of windows, and these can be supplied as opening lights, horizontally pivoted and reversible for cleaning from inside. Included in "Modolite" windows are vertically-pivoted lights; sashes bottom-hung to open inward, side- and top-hung to open out; and direct glazing from either outside or inside with beads. A notable feature is that any of these forms of opening and fixed lights may be used in the same frame, providing freedom in design. The windows are produced in both traditional and contemporary styles, while special designs can be manufactured to the client's specification. Numerous original designs can be derived by combinations of standard units. (Stand 424.)

Selected examples of their standard flush and panel doors and windows are being shown by **Leaderflush, Ltd.,** Trowell, Nottingham. The door exhibits illustrate finishing veneers and various core constructions. Of particular interest is the type HD housing door, now produced with a new type of core construction which is understood to give the door greater rigidity, and eliminate the possibility of bowing or warping. For private housing schemes, where a better quality door is required, this type of door can be faced with beech plywood. Windows are displayed from the full BS range made by the company, as supplied to local authorities. (Stands B, 26 and 27.)

BUILDING EXHIBITION

Diary of Events

FOLLOWING is the official list of meetings and events arranged for the run of the Building Exhibition:

Nov.			
16	12 noon	Opening ceremony, by the Rt. Hon. Nigel Birch, OBE, Minister of Works	Pillar Hall
16	2.30	London Building and Engineering Contractors Accident Prevention Group	Large Conference Room
	2.30	Joinery Managers' Association	Empire Restaurant. Chairman and Council informally meeting members
	3.00	LMBA President's "At Home"	LMBA Club Room
17	All day	Southern Counties Federation of Building Trades Employers	Large Conference Room
	4.30	Essex, Cambridge, and Herts. Soc. of Architects	Visit and tea in Pillar Hall for Council
18	2.00	Tretol, Ltd.	Lecture. Large Conference Room
19	2.00	Plasterers' Craft Guild	Small Conference Room. Annual General Meeting
	2.00	Institute of Municipal Building Management	Large Conference Room. Annual General Meeting
21	2.30	South Eastern Brick and Tile Federation	Small Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Lecture and Film
22	11.45	Architects' Benevolent Society	Large Conference Room. Meeting
	3.00	Nat. Fed. Building Trades Employers	Reception in Pillar Hall
	4.30	Faculty of Architects and Surveyors	Tea. Addison Restaurant
	6.00	Brixton School of Building	Lecture on maintenance of buildings
23	10.00	British Cast Concrete Federation	Small Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Lecture and Film
24	All day	British Ceramic Society	Large Conference Room
25	3.00	Tretol, Ltd.	Large Conference Room. Lecture
26	2.00	Guild of Bricklayers	Large Conference Room. Annual General Meeting
	2.30	Institute of Certified Carpenters	Small Conference Room
28	1.00	Worshipful Company of Tylers and Bricklayers	Empire Restaurant Luncheon
29	10.00	National Federation of Clay Industries	Large Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Lecture and Film

BIRMINGHAM GREEN BELT

Proposals for the establishment of a green belt around Birmingham have been virtually agreed by the three neighbouring authorities of Worcestershire, Warwickshire and Staffordshire. The belt will be the deepest where the threat to development is greatest, such as along main trunk roads, and the narrowest in rural areas off the beaten track.

Monopolies Commission

Two New References

THE Board of Trade have announced the terms of reference of the Monopolies and Restrictive Practices Commission's inquiry into common prices and collusive tendering. It is the last of the six references which the President of the Board of Trade announced on June 16, in the House of Commons. Any person or organisation wishing to offer evidence should write the Secretary, Monopolies and Restrictive Practices Commission, 8, Cornwall-terrace, Regent's Park, London, NW1.

In the course of this inquiry, the Monopolies Commission will examine the general effect on the public interest of agreements and arrangements among suppliers which restrict or limit competition in the prices at which they supply, offer to supply or tender to supply goods in the United Kingdom. It will also cover agreements and arrangements relating to the prices or charges for the application of a process to goods. Agreements relating to practices considered in the recent Report (Cmd 9504) of the Monopolies and Restrictive Practices Commission on Collective Discrimination, including collective resale price maintenance, are excluded. Individual resale price maintenance agreements are also excluded.

The "specified practices" to be investigated by the Commission are defined as actions taken in the course of carrying out such agreements as are described below:—

(i) agreements between two or more persons carrying on the business in the United Kingdom of supplying goods in the United Kingdom which have the effect of restricting or limiting the freedom of the parties to the agreements or any of them with respect to the prices at which they are to supply, offer to supply or tender for the supply of goods in the United Kingdom;

(ii) agreements between two or more persons carrying on the business in the United Kingdom of applying any process to goods which have the effect of restricting or limiting the freedom of the parties to the agreements or any of them with respect to the prices at which or the charges for which they are to apply, offer to apply or tender for the application of that process to goods.

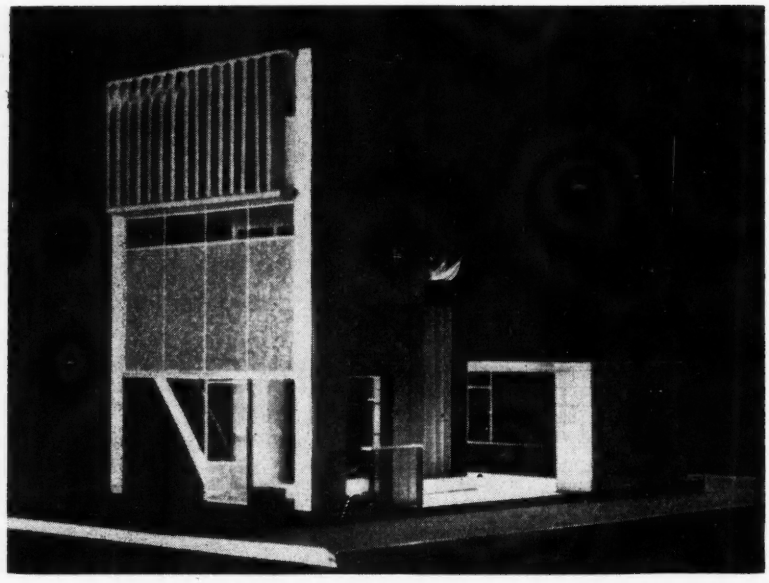
The expression "the specified practices" shall not include:—(i) the practices of exclusive dealing, collective boycotts, aggregated rebates and other discriminatory trade practices which were the subject of an inquiry under Section 15 of the said Act on which the Commission reported on May 13, 1955, under the general title of Collective Discrimination (Cmd. 9504); (ii) actions taken in the course of carrying out:—

(a) agreements of the kind referred to in the paragraph above defining "specified practices" insofar, but only insofar, as they provide for individual resale price maintenance;

(b) agreements between a particular supplier of goods (whether an individual, a partnership or a body corporate) and the purchaser or owner (as the case may be) of those goods to which no other persons are parties;

(c) agreements between a particular person carrying on the business of applying a process to goods (whether an individual, a partnership or a body corporate) and the customer for whom or to whose order the process is applied and to which no other persons are parties;

(d) agreements to which the only parties are two or more interconnected bodies corporate within the meaning of the Monopolies and Restrictive Practices (Inquiry and Control) Act, 1948, or two or more persons carrying on business in partnership with each other.



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A comprehensive display of the latest developments in shutter doors and collapsible gates are featured by the **Bolton Gate Co., Ltd.,** Waterloo-street, Bolton, with a range of time- and labour-saving automatic controls. One multi-panel sliding door (shown for the first time) is constructed from 20 gauge "Zintec" panels. It is designed to give a flush finish and is capable of negotiating a very small radius. Another new exhibit is the "Dryvin" garage door electrical operating unit for automatically opening and closing side-hung garage doors, installed in a few hours. A further new development is a two-speed sliding door constructed from 16-gauge panels, with special link motion, size 5 ft. 4 in. wide by 7 ft. high; for modern passenger lift application. A hinged door of Pilkington's toughened glass is demonstrated with a fully-automatic photo-electric cell control. The compact control gear is placed overhead. Also shown are two patent shutter doors —one electrically operated with push-button control, the other hand operated, as well as a "Superfold" Vynide-covered collapsible partition. The leathercloth covering is fitted to both sides and is supplied in a variety of shades to match colour schemes. (Stand H, 184.)

The stand of **Chance Brothers, Ltd.,** 28, St. James's-square, SW1, has been designed by Lady Margaret Casson, ARIBA, to show the imaginative use which can be made of coloured glass. The glasses used in the scheme are all hand-made, either blown or bent, and come from the company's range of antique and coloured sheet glasses. There are a series of simple displays, in one of which are included light fittings designed by Lady Casson and made by Ascog, Ltd., which embody coloured antique glasses. A screen of glass mosaic indicates the range of tints available; and another screen shows the subtle lighting affect which "Norman Slabs" can provide. A stained glass window, designed and made by students of the Royal College of Art, shows how coloured glass can be effectively put to its original classical use. A laylight of coloured glass louvres illuminates part of the stand, which also features wall tiles of coloured antique glass and tinted mirrors. (Stand 430.)

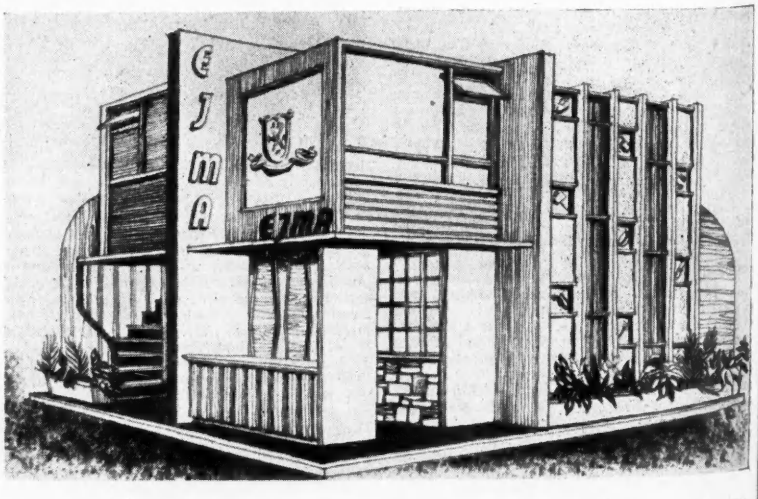
The exhibit of **Clarke Ellard Engineering Co., Ltd.,** Letchworth, Herts, demonstrates the space saving and other advantages of sliding doors, particularly as applied to houses and the domestic garage. A typical lounge and dining room are divided by a pair of sliding doors which disappear into cavity walls. A single sliding door on one side leads into an adjoining garage, one end of which is closed by multi-leaf sliding doors passing around a side wall. The other end of the garage is closed by a single-leaf door which is counterbalanced and opens to a horizontal position in the roof. Another area represents an L-shaped room which can be arranged into three distinct and separate shapes by means of a patented partition that will fold and slide in different directions as desired. (Stands 496 and 498.)

The "Concavo" flush door shown by **Crosby and Co., Ltd.,** Farnham, Surrey, is suitable for exterior or interior use, and is claimed to neither "ripple" nor warp. Tests have shown that the door maintains its appearance in conditions of extreme humidity and even in flooding. The "Concavo" door is a moulded flush door, and experiments have proved that internal bracings in the door are unnecessary. Without them, the natural expansion and contraction of the surface make the door more rigid and precludes any tendency for such changes to warp the door. With its slight concave surface, this door has a pleasing appearwood, to ensure a perfectly integrated board material. (Stand B, 29A.)

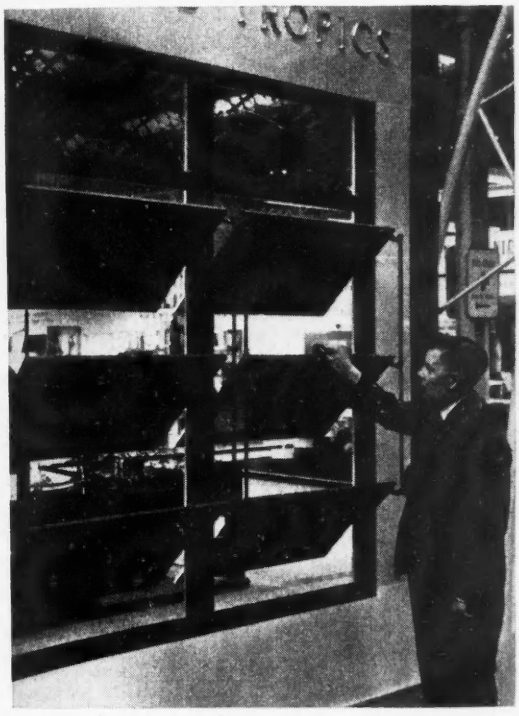
A recently-introduced range of doors is the main exhibit on the double-decked stand of **J. Gliksten and Son, Ltd.,** Carpenters-road, Stratford, E15. These doors have been designed to be in keeping with contemporary décor, and include plywood and hardboard-faced flush doors, veneered flush doors, external flush doors and hardwood panel doors with matching gates and garage doors. Oak gates and softwood doors are also included. These doors are shown against a background of "Glinex" structural panels, the latter also being shown in a suspended ceiling of special design. A number of hardwood panels and decorative veneered panels are included, as well as interior and exterior grades of plywood and "Hernite" hardboard and insulation boards. An interesting innovation is the working model of a timber-drying kiln on the stand. (Stand G, 144.)

Of particular interest on the stand of **F. Hills and Sons, Ltd.,** Norton-road, Stockton-on-Tees, is their new "Placarol" interior flush door core, which will shortly be available in the "Popular" and "Durador" flush doors. Consisting of hundreds of wooden spirals bonded with the plywood facings, the "Placarol" core is claimed to have a strength/weight ratio and stability hitherto unobtainable in semi-solid flush doors. The spirals provide an almost continuous and uniform support for the plywood facings, characteristic to that of a solid timber core, but with an appreciable saving in weight. Also on show is "Durette," a plastic-faced plywood recently introduced to the trade which is available in five colours and various thicknesses from $\frac{1}{8}$ in. to $\frac{3}{4}$ in. The decorative plastic finish is not just an ordinary surface application but is actually included in the veneer assembly during the manufacture of the plywood, to ensure a perfectly integrated board. (Stand S, 342.)

A selection of "Modolite" windows and door frames, including pivot-hung windows, are being featured by **H. C. Janes, Ltd.,** 183, High Town-road, Luton. Particular attention is given in this range to the large "picture"



The stand of the English Joinery Manufacturers' Association, Sackville House, 40, Piccadilly, W1, has been designed by T. Sibthorp, FRIBA, to show a representative range of "EJMA" standard joinery. In addition to the standard casement range of windows, a new range of landscape windows has been designed and the standard sash windows revised and improved. Two standard kitchen sink units for use with a fireclay or metal sink have been introduced, as well as a double-glazed window designed to allow for glazing with "Insulight." A new range of pivot-hung windows has also been prepared. (Stand F, 131.)



The louvred window shown here is intended for the tropics, and is being displayed by Henry Hope and Sons, Ltd., 17, Berners-st., W1, as part of their range of tropical windows and doors. A tropica ipanel unit is featured, designed for coupling at the sides or separated by pilasters, each unit one-storey high with louvres at top and bottom separated by casements. The company are also showing their "Windogrid" system of curtain walling for schools and other buildings, as well as a bronze window with leaded lights, such as was used for the Brunei Mosque, Borneo. (Stands D, 90 and 91.)

type of windows, and these can be supplied as opening lights, horizontally pivoted and reversible for cleaning from inside. Included in "Modolite" windows are vertically-pivoted lights; sashes bottom-hung to open inward, side- and top-hung to open out; and direct glazing from either outside or inside with beads. A notable feature is that any of these forms of opening and fixed lights may be used in the same frame, providing freedom in design. The windows are produced in both traditional and contemporary styles, while special designs can be manufactured to the client's specification. Numerous original designs can be derived by combinations of standard units. (Stand 424.)

Selected examples of their standard flush and panel doors and windows are being shown by **Leaderflush, Ltd.,** Trowell, Nottingham. The door exhibits illustrate finishing veneers and various core constructions. Of particular interest is the type HD housing door, now produced with a new type of core construction which is understood to give the door greater rigidity, and eliminate the possibility of bowing or warping. For private housing schemes, where a better quality door is required, this type of door can be faced with beech plywood. Windows are displayed from the full BS range made by the company, as supplied to local authorities. (Stands B, 26 and 27.)

BUILDING EXHIBITION

Diary of Events

FOLLOWING is the official list of meetings and events arranged for the run of the Building Exhibition:

Nov.			
16	12 noon	Opening ceremony, by the Rt. Hon. Nigel Birch, OBE, Minister of Works	Pillar Hall
16	2.30	London Building and Engineering Contractors Accident Prevention Group	Large Conference Room
	2.30	Joinery Managers' Association	Empire Restaurant. Chairman and Council informally meeting members
	3.00	LMBA President's "At Home"	LMBA Club Room
17	All day	Southern Counties Federation of Building Trades Employers	Large Conference Room
	4.30	Essex, Cambridge, and Herts. Soc. of Architects	Visit and tea in Pillar Hall for Council
18	2.00	Tretol, Ltd.	Lecture. Large Conference Room
19	2.00	Plasterers' Craft Guild	Small Conference Room. Annual General Meeting
	2.00	Institute of Municipal Building Management	Large Conference Room. Annual General Meeting
21	2.30	South Eastern Brick and Tile Federation	Small Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Lecture and Film
22	11.45	Architects' Benevolent Society	Large Conference Room. Meeting
	3.00	Nat. Fed. Building Trades Employers	Reception in Pillar Hall
	4.30	Faculty of Architects and Surveyors	Tea. Addison Restaurant
	6.00	Brixton School of Building	Lecture on maintenance of buildings
23	10.00	British Cast Concrete Federation	Small Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Lecture and Film
24	All day	British Ceramic Society	Large Conference Room
25	3.00	Tretol, Ltd.	Large Conference Room. Lecture
26	2.00	Guild of Bricklayers	Large Conference Room. Annual General Meeting
	2.30	Institute of Certified Carpenters	Small Conference Room
28	1.00	Worshipful Company of Tylers and Bricklayers	Empire Restaurant Luncheon
29	10.00	National Federation of Clay Industries	Large Conference Room. Meeting
	4.30	Colt Ventilation, Ltd.	Large Conference Room. Lecture and Film

BIRMINGHAM GREEN BELT

Proposals for the establishment of a green belt around Birmingham have been virtually agreed by the three neighbouring authorities of Worcestershire, Warwickshire and Staffordshire. The belt will be the deepest where the threat to development is greatest, such as along main trunk roads, and the narrowest in rural areas off the beaten track.

Monopolies Commission

Two New References

THE Board of Trade have announced the terms of reference of the Monopolies and Restrictive Practices Commission's inquiry into common prices and collusive tendering. It is the last of the six references which the President of the Board of Trade announced on June 16, in the House of Commons. Any person or organisation wishing to offer evidence should write the Secretary, Monopolies and Restrictive Practices Commission, 8, Cornwall-terrace, Regent's Park, London, NW1.

In the course of this inquiry, the Monopolies Commission will examine the general effect on the public interest of agreements and arrangements among suppliers which restrict or limit competition in the prices at which they supply, offer to supply or tender to supply goods in the United Kingdom. It will also cover agreements and arrangements relating to the prices or charges for the application of a process to goods. Agreements relating to practices considered in the recent Report (Cmd 9504) of the Monopolies and Restrictive Practices Commission on Collective Discrimination, including collective resale price maintenance, are excluded. Individual resale price maintenance agreements are also excluded.

The "specified practices" to be investigated by the Commission are defined as actions taken in the course of carrying out such agreements as are described below:—

(i) agreements between two or more persons carrying on the business in the United Kingdom of supplying goods in the United Kingdom which have the effect of restricting or limiting the freedom of the parties to the agreements or any of them with respect to the prices at which they are to supply, offer to supply or tender for the supply of goods in the United Kingdom;

(ii) agreements between two or more persons carrying on the business in the United Kingdom of applying any process to goods which have the effect of restricting or limiting the freedom of the parties to the agreements or any of them with respect to the prices at which or the charges for which they are to apply, offer to apply or tender for the application of that process to goods.

The expression "the specified practices" shall not include:—(i) the practices of exclusive dealing, collective boycotts, aggregated rebates and other discriminatory trade practices which were the subject of an inquiry under Section 15 of the said Act on which the Commission reported on May 13, 1955, under the general title of Collective Discrimination (Cmd. 9504); (ii) actions taken in the course of carrying out:—

(a) agreements of the kind referred to in the paragraph above defining "specified practices" insofar, but only insofar, as they provide for individual resale price maintenance;

(b) agreements between a particular supplier of goods (whether an individual, a partnership or a body corporate) and the purchaser or owner (as the case may be) of those goods to which no other persons are parties;

(c) agreements between a particular person carrying on the business of applying a process to goods (whether an individual, a partnership or a body corporate) and the customer for whom or to whose order the process is applied and to which no other persons are parties;

(d) agreements to which the only parties are two or more interconnected bodies corporate within the meaning of the Monopolies and Restrictive Practices (Inquiry and Control) Act, 1948, or two or more persons carrying on business in partnership with each other.

L

LMBA

Building Pupils and Students: Board of Administration

MR. L. J. HOLLOWAY, president of the LMBA, has been elected chairman of the Board of Administration which is to supervise the LMBA's new pupilship and studentship scheme. Mr. N. S. Farrow, chairman of the Education Committee, has been appointed vice-chairman.

The other members of the Board are Mr. Gerald Hill, Mr. W. K. Laing, Mr. D. E. Woodbine Parish and Mr. K. J. Pearce.

Christmas Card Competition

FIRST place in a competition open to students and ex-students of the City and Guilds of London Art School for prizes offered by the LMBA for designs suitable for use as a Christmas card has been won by Mr. Kenneth Breeze.

Mr. Breeze studied at Brixton School of Building from 1943 to 1947, passing the City and Guilds final examination in painting and decorating. Since then, as a free lance designer, he has carried out numerous commissions for architects and publishers. He is at present engaged on designing book jackets and showcards as well as three-dimensional exhibition displays.

Mock Disputes Commission

AFTER their luncheon at Derry and Tom's Restaurant, Kensington, on Wednesday, Central Area No. 1 staged a Mock Disputes Commission. A hypothetical case was considered, and the rôles of the Commission and the witnesses, both employer and operative, were taken by LMBA members.

NE Area Prizegiving

THE present standard of austere building does not permit the craftsman to use his skill to the best advantage, said MR. R. C. HARRISON, ARIBA, chairman of the West Essex Chapter of Architects, when he presented prizes to more than 30 students and apprentices at the third annual prize giving of the North-Eastern area of the London Master Builders Association, on October 25, at the Plough Hotel, Ilford. Mr. T. A. Clark, chairman of the area, presided.

Not excluding architects, the industry was suffering from a lowering of accepted standards, which should be arrested by all sections of the building industry. In this direction the West Essex Chapter of Architects had instituted a certificate of craftsmanship which would be awarded annually for work worthy of the reputation of the industry. Mr. Harrison paid tribute to the prizewinners' keenness and pride in their crafts. It was from people of this standard that the industry looked for future foremen, clerks' of works and managers; positions which were open to all apprentices.

MR. J. H. COCKS, AIOB, MRSanI, FBICC, head of department of Architecture, Building and Surveying, South-East Essex Technical College and School of Art, on behalf of the prizewinners thanked the area for the prizes and spoke of the encouragement such awards gave, not only to the boys concerned, but to all apprentices attending technical colleges. He reminded the apprentices and students that if they wished to obtain higher positions in the industry it was most essential that they should continue their studies and obtain the necessary qualifications, together with technical experience.

A vote of thanks on behalf of the North-Eastern area was proposed by MR. K. C. F. FOSTER, FIOB, vice-president, LMBA.

Central Area No. 5 Prizegiving

THE annual prize giving of LMBA central area No. 5 took place in the Berkeley Rooms of Messrs. Zeeta's, Putney, on October 28.

Opening the proceedings the chairman of the area, MR. R. A. WOOD, welcomed all those who were present and congratulated the prizewinners on the successes which they had obtained. He recalled that the area prize fund had been dedicated to the late Mr. Eric W. Garrett, a member of the area and a past president of the LMBA, who had rendered such signal services to the building industry during his lifetime.

The prizes were presented by MR. ALISTER MACDONALD, FRIBA, who addressed the prizewinners on the subject of the vital importance of craft training to the future of the industry.

MR. J. R. NEWMAN BOOTH, HM Inspector, Ministry of Education, spoke of the fuller facilities now being provided at the technical colleges for the technical education of entrants into the building industry. Mr. Newman Booth quoted very encouraging figures showing how the number of students taking courses in building education in technical colleges had increased during the past few years.

MR. L. J. HOLLOWAY, FIOB, president of the LMBA, congratulated the prizewinners and in particular the craft students upon their success and earnestly advised them not to despise the use of their hands since the more efficient they were in the use of the tools of their trades the better they would later be able to handle machine tools. Mr. Holloway also congratulated the chairman of the area upon arranging in the near future for a lecture to be given under the auspices of the area in respect of accident prevention precautions, which was a subject to which all concerned with the industry were devoting great attention.

The prizewinners were as follows:—

BRICKWORK.—J. A. Hoare, Brixton School of Building (South Eastern Gas Board).

CARPENTRY AND JOINERY.—S. J. Smith, Brixton School of Building (J. W. Falkner and Sons, Ltd.); A. E. Cresswell, Wandsworth Technical College (Projectile Engineering Co., Ltd.).

MASONRY.—D. J. Levick, Brixton School of Building (Trollope and Colls, Ltd.).

PAINTING AND DECORATING.—J. M. Corner, Brixton School of Building (A. Corner).

PLASTERING.—J. Smith, Brixton School of Building (H. and F. Badcock, Ltd.).

PLUMBING.—L. G. Bishop, Brixton School of Building (F. and H. F. Higgs, Ltd.).

WOODCUTTING MACHINIST.—K. W. Newton, Brixton School of Building (Hampton and Sons, Ltd.).

NATIONAL CERTIFICATE.—C. A. Chater, Brixton School of Building (Higgs and Hill, Ltd.); R. Reynolds, Brixton School of Building (Richard Costain, Ltd.).

COMPANY RESULT

Following are brief details of a company result:—

THE BRITISH PORTLAND CEMENT MANUFACTURERS, LTD., have declared an interim dividend of 1s. per £1 unit of ordinary stock, less tax at 8s. 6d. in the £, in respect of the current year (1954—the same) payable on November 24. Mr. F. C. Fox has been appointed an additional director of the company.

LCC

Annual Report of Scientific Adviser

THE report on the activities of the Scientific Branch of the Public Health Department for the year 1954, submitted by Dr. S. G. Burgess, the Scientific Adviser to the Council, has been published by the London County Council (price 9d.). The function of the branch is to advise all departments of the Council on scientific matters, and its work is carried out in three groups of laboratories. Following are extracts from the report.

Sewage Treatment.—The civil engineering work at the Northern Outfall Works progressed rapidly during the year and the new sedimentation tanks are now in operation.

Tests were carried out to determine the effect on aeration of the presence of synthetic detergents which may be expected to retard the self-purification of a river by reducing the rate of oxygen uptake from the air and may reduce the efficiency of the activated sludge process used for sewage treatment.

Paints and Surface Coatings.—The detailed evaluation of hard gloss paints has included long-term roof exposure and accelerated weathering, as well as laboratory examination. The resultant economies accruing in the next few years from the longer intervals now specified between repainting programmes should be considerable.

In one instance the yellowing of a light-coloured hard gloss paint in the London atmosphere was shown to be due to the action of sulphur dioxide on the particular alkyd-based medium employed. Out of six white hard gloss paints recommended by manufacturers to resist atmospheres polluted with sulphuretted hydrogen only one was found to be acceptable.

A study of anti-condensation paints was made and it was considered that for the surface coatings of kitchens and laundries hard gloss paints were generally the most satisfactory, but attention should be given to an improvement of ventilation.

Building Materials.—The building of houses, flats and schools has continued on a very large scale and, as a result, increasing demands have been made on the facilities provided by the Branch for the examination of building materials. The majority of the samples originated from sites in process of development. Considerable use has been made of the accelerated weathering and corrosion apparatus for rapid assessment of weathering qualities of certain materials, e.g., claddings. Tests for incombustibility and surface spread of flame have been applied to materials intended for interior use mainly in theatres and cinemas.

Air Pollution.—The Council maintains a number of instruments for the measurement of air pollution by standard methods. This work is done in conjunction with the DSIR, and it forms part of a long-term investigation.

A new form of electrically operated automatic sampler was devised in the laboratory which enabled standard volumetric measurements to be made over six consecutive periods without intermediate attention, the sampling period being variable over a wide range.

The data obtained during the year again

emphasised the difference between rural and urban conditions, and also indicated the variations which occur within the County due to local sources of pollution. Seasonal fluctuations were clearly marked at all the sites where regular observations are made, such as the County Hall, the outfall works, Kew Observatory and seven of the parks.

The overall picture showed some reduction in the amount of sulphur dioxide present in the air as compared with recent years; an important factor was the rainfall, which was unusually persistent during several months of the year.

The Slum Clearance Programme

THE London County Council, meeting on Tuesday, had before them a report of the housing committee on the slum clearance programme, 1956-60. The report stated that in July, 1951, the Council adopted a slum clearance programme to deal with some 300 unfit areas in the next five years. It was then estimated that these areas contained about 10,000 houses and, with the addition of 2,000 houses on lands added to make sites suitable for redevelopment and 1,500 houses in an earlier priority programme of six areas, the total number of houses to be dealt with by the Council and the Metropolitan borough councils was estimated at 13,500, in addition to the outstanding balance of pre-war clearance schemes. Up to June 30, 1955, the Council had declared 7,382 houses of its share of the programme to be unfit.

In August, 1953, the housing committee invited the Metropolitan borough councils to submit details of further unfit houses so that a programme could be drawn up for 1956-60.

While these proposals were being formulated, the Housing Repairs and Rents Act, 1954, came into operation, requiring housing authorities to submit to the Minister of Housing and Local Government proposals for dealing with houses considered to be unfit. In London the proposals were to be submitted for each borough jointly by the Council and the Metropolitan borough council concerned.

The housing committee report that the joint programme now submitted to the Minister shows a total of 20,947 unfit houses in London, as follows: *Clearance areas:* London County Council, 13,281; Metropolitan borough councils, 6,436. *Individual unfit houses:* Metropolitan borough councils, 1,230.

It is estimated that the work of rehousing and the demolition of houses in the Council's share of the clearance areas and of houses on lands added to make sites suitable for redevelopment will take some seven to eight years over the whole county, subject to the necessary rehousing accommodation becoming available.

Housing Accounts, 1954-55

THE joint report of the housing and finance committees on the Council's housing accounts for the financial year ended March 31, 1955, shows that net capital expenditure for the year was £17,832,751, a decrease of more than £3½m. on the previous year. Total capital expenditure by the Council and its predecessors on housing to March 31, 1955, amounted to nearly £211m. As £28m. has been provided for amortisation, the outstanding loan debt at March 31 stood at £182,707,654.

Total housing expenditure (£18,432,331) exceeded rents and miscellaneous income during the year by £6,414,414. Of this, £3,093,238 was met by Exchequer subsidy and £3,321,176 by the rates. The rate contribution was higher than for the previous year (£3,088,377).

For all permanent dwellings built since 1919, the average cost was £1 8s. 1d. a week, of which the tenant bore 16s. 7d. The comparable figures for the previous year were £1 6s. 7d. and 15s. 11d. On average, tenants of flats bore half the cost of their dwellings, one-third was borne by Exchequer subsidy and one-sixth by the rates. Tenants of cottages bore two-thirds of the cost of their dwellings on average, the balance being shared equally between Exchequer subsidy and the rates.

John Nash Memorial

THE town planning committee have agreed to make a contribution of £200 to the John Nash Memorial Committee towards a memorial to be erected in the portico of All Souls' Church, Langham-place, St. Marylebone.

Survey of London

VOLUME XXVI of the Survey of London will deal with the southern part of the parish of St. Mary, Lambeth. The subsequent volume is to cover Spitalfields.

The town planning committee state that they will later turn their attention to those central areas of London, rich in buildings of interest and high architectural merit, where extensive redevelopment is likely to take place, e.g., the unrecorded parts of Westminster and Holborn, and the parish of St. Marylebone. A preliminary inspection is to be undertaken immediately of the whole of these central areas.

COLLIERY SHALE FOR HOUSE FOUNDATIONS

Ministry Officials' Fears

IT WAS reported at Warwick Town Council meeting on October 26 that Ministry of Housing officials who had inspected the houses on the Saltisford estate at Warwick, where cracked floors have occurred due to the swelling of colliery shale used in the foundations, were seriously concerned about what might happen to houses in other parts of the country.

CLLR. J. MCGROUTHER told members that the number of houses with cracked floors had risen from 34 to 46, leaving only four houses so far undamaged. A Housing Committee report stated that similar symptoms had appeared in 64 out-houses on the Forbes estate. The Town Clerk, MR. H. C. FILLMORE, said that counsel's opinion was being sought on who was responsible for the damage.

The council decided to ask the Ministry for a loan of £7,200 for repair to the Saltisford estate houses. The repairs, it was stated, would take nine months.

SMOKY CHIMNEYS

A revised edition of BRS Digest No. 18, dealing with the problem of smoky chimneys, has recently been produced by the Building Research Station, Watford. Copies may be obtained (price 3d.) from HM Stationery Office or from any bookseller.

WATER SUPPLIES

Inquiry into Growing Demand

THE Central Advisory Water Committee, meeting in London on October 31 at the Ministry of Housing and Local Government, decided to institute inquiries into the growing demand for water and into the collection of information about the country's water resources. It appointed members to form the nuceleus of two sub-committees which will report back to the main committee. They have power to co-opt., so that the inquiries will be widely representative.

The terms of reference of the sub-committees are:—

(a) *Sub-Committee on the growing demand for water.* To consider the extent to which the demand for water for domestic, industrial, agricultural and other purposes is increasing and is likely to increase; to consider the problems involved in meeting these demands, including, in broad terms, the cost; to consider whether there are any substantial economies in the use or cost of water which could be made without reduction in standards of hygiene or in industrial or agricultural efficiency; and to make recommendations.

(b) *Sub-Committee on information on water resources.* (i) To review the current activities which contribute to our knowledge of the nation's water resources; (ii) to define the additional work needed to make a balanced survey of the quantity and quality of surface and underground water available for domestic, industrial and agricultural use; and (iii) to advise on ways of collecting and interpreting the necessary information, correlating it with information from other sources and publishing it.

Ald. R. C. Yates, of Birmingham Corporation, president of the British Waterworks Association, will be chairman of the sub-committee on the growing demand for water, and other members appointed so far are: Mr. H. E. Hopthrow, Imperial Chemical Industries, Ltd.; Mr. A. G. McLellan, engineer and general manager, Sunderland and South Shields Water Co.; Mr. W. A. Muddell, chairman, Trent River Board; Mr. J. H. T. Stilgoe, engineer, Liverpool Water Undertaking; Ald. J. R. Wardell, past president, British Waterworks Association.

Prof. J. Proudman, formerly professor of Oceanography at Liverpool University, will be chairman of the sub-committee on information on water resources. Other members appointed so far are: Mr. John Cockram, general manager, Colne Valley Water Co.; Lieut.-Col. J. Godman, chairman, Severn River Board; Prof. W. B. R. King, sometime professor of geology, Cambridge University; and Mr. W. C. Knill, engineer and manager, Croydon Water Undertaking.

CERTIFICATES OF DISREPAIR

The Ministry of Housing and Local Government has sent a circular to local authorities (No. 59/55), requesting a return of the number of applications by tenants of certificates of disrepair, and of the numbers granted and rejected under Section 26(1) of the Housing Repairs and Rents Act, 1954, for the period April 1 to September 30, 1955. Subsequent returns are required at six-monthly intervals.

The Builder

CURRENT PRICES OF MATERIALS

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. Due to the exceptional circumstances now prevailing it is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

		£	s.	d.
Pit Ballast	per yd.	1	5	6
Pit Sand	,,	1	2	11
Washed Sand	,,	1	6	1
¾ in. Shingle	,,	1	2	5
¼ in. Broken Brick	,,	1	0	0
Pan Breeze	,,		10	3
Fine or Coarse Foamed Slag Aggregate	per ton	3	0	9

2 yds. of fine and 2.6 yds. of coarse per ton

CEMENT, etc.

Including non-returnable jute sacks or paper bags.

Best British Portland Cement. Standard Specification delivered Charing Cross area.

6-ton loads and upwards, site	per ton	5	1	6
1 to 6 tons, site	,,	5	13	6
Rapid Hardening Cement in 6-ton loads and upwards to site	,,	5	12	0
1 to 6 tons do. site	,,	6	4	0

Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices.

Red, Buff or Khaki Colorcrete in 6-ton lots	,,	7	3	0

Other colours according to colour.

In 4-ton lots from 295s. 0d. to 685s. 0d. per ton.

White Portland Cement	,,	13	2	0
Under 1 ton	per cwt.		15	7
417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards	per ton	6	14	0

Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement.

Cullamix Tyrolean Finish, £11 5s. 0d. to £14 0s. 0d. (1-ton loads and upwards).

Lightning and Ciment Fondu Brands High Aluminous cement, 6-ton lots and up	,,	14	8	3
Stourbridge Fireclay, 6-ton loads at Railway Depot, London	,,	6	8	9
Moler Mortar Powder for Flue Bricks (London sites)	per cwt.	1	10	0

BRICKS

Full Loads.

First Hard Stocks	per 1,000	11	17	0
Second Hard Stocks	,,	10	16	0
Mild Stocks (Kiln Burnt)	,,	9	1	6
Mild Stocks	,,	8	16	6

All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job.

2½ in. Nominal Fletton Bricks to sites in W.C. District Commons	,,	5	13	0
Cellular do.	,,	5	13	0
Keyed do.	,,	5	15	0
Rustics	,,	6	18	0
Cellular Rustics	,,	6	18	0
Single Bullnose do.	,,	6	13	0
Sandfaced	,,	7	13	0
Best Blue Pressed Staffs (London Stations)	,,	27	5	6
Do. Bullnose (London Stations)	,,	27	19	6
Blue Wire Cuts (London Stations)	,,	24	14	0
Midhurst Lime Bricks (London sites)	,,	10	8	0
Uxbridge Whites (London sites)	,,	9	6	6
Special Purpose Sandlime Bricks (London sites)	,,	7	14	0
2½ in. Best Stourbridge Fire Bricks (London stations)	,,	26	6	3
3 in. do. (London stations)	,,	31	12	0
2½ in. Moler Flue Bricks (London sites)	,,	36	0	0
2½ in. Machine-made Sandfaced Red Facings (London sites)	,,	14	8	6
2½ in. Machine-made Multi Red Facings (London sites)	,,	14	13	6
2½ in. Hand-made Sandfaced Red Facings (London sites)	,,	15	6	0
2½ in. Hand-made Sandfaced Multi-Colour Facings (London sites)	,,	16	1	0
Hand-made Sandfaced Cherry Red Facings. Berkshire district (London sites)	,,	17	5	6
Hand-made Sandfaced Multi-Colour Facings. Berkshire district (London sites)	,,	17	5	6
Rubber Bricks for gauged arches (London sites)	per 1,000	41	10	0
2½ in. Surrey Clamp Burnt Multi Stock Facings (London sites)	,,	13	6	0
2½ in. Surrey Kiln Burnt Multi Stock Facings (London sites)	,,	14	18	0
Glazed Bricks (London sites), White, Ivory, Brown—				
Stretchers	,,	64	0	0
Headers	,,	63	0	0
Quoins, Bullnose and 4½ in. Flats	,,	80	0	0
Double Stretchers	,,	85	0	0
Double Headers	,,	77	10	0
One side and two ends	,,	87	0	0
Two sides and one end	,,	89	10	0
Splays and Squints	,,	83	0	0

Cream and Buff £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 17½% for Best quality and plus 17½% less 10% for Second quality.

PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District).

	Minimum lorry loads.			
HOLLOW CLAY PARTITION BLOCKS (KEYED)				
*2 in.	140 yds.	per yd. sup.	4	4
*2½ in.	140 yds.	,,	4	7
* 3 in. (3 cavity)	120 yds.	,,	5	4
BUILDING BLOCKS (KEYED)				
*3 in. (6 cavity)	110 yds.	,,	5	6
*4 in. (6 cavity)	95 yds.	,,	6	9
6 in. (8¼ in. × 5⅝ in.)	1,250 blocks	per 1,000	26	6	0

* Half blocks at no extra charge.

CLINKER CONCRETE				
2 in.	100 yds.	per yd. sup.	3	9
2½ in.	85 yds.	,,	4	4
3 in.	75 yds.	,,	5	3
4 in.	55 yds.	,,	6	5
CRANHAM				
2 in.		,,	6	8
2½ in.		,,	7	4
3 in.		,,	8	7
4 in.		,,	10	7
4½ in. Load bearing quality		,,	11	8
MOLER PARTITION BLOCKS				
2 in.	150 yds.	,,	15	6
2½ in.	120 yds.	,,	15	9
3 in.	100 yds.	,,	16	0
4 in.	90 yds.	,,	19	0
LIGHTWEIGHT CONCRETE BUILDING AND PARTITION BLOCKS OF VARIOUS SOURCES OF MANUFACTURE				
2 in.	100 yds.	,,	5	9
2½ in.	80 yds.	,,	6	11
3 in.	65 yds.	,,	8	1
4 in.	50 yds.	,,	9	4
4½ in.	44 yds.	,,	10	2
6 in.	33 yds.	,,	13	8
THERMALITE PARTITION BLOCKS				
2½ in.	120 yds.	,,	6	11
THERMALITE LOADBEARING INSULATING BLOCKS				
3 in.	100 yds.		8	3½
4 in.	75 yds.		10	9
5 in.	60 yds.		13	5
6 in.	50 yds.		16	1½
8 in.	37½ yds.		1	1	6
9 in.	33 yds.		1	4	3½
FLOOR BLOCKS AND FILLER TILES				
3 in. Floor Blocks 12 in. by 12 in. delivered in full lorry-loads	per 1,000	33	6	0
4 in. do.	,,	35	14	0
5 in. do.	,,	42	10	0
6 in. do.	,,	47	17	0
7 in. do.	,,	58	8	0
8 in. do.	,,	68	9	0
10″×3″×⅝″ Filler Tiles in multiples of 10 tiles	per 1,000 multiples	56	15	0
12″×3″×⅝″ do.	do. ,, ,,	64	10	0
10″×4″×⅛″ do.	do. ,, ,,	71	0	0

STONEWARE DRAIN PIPES, etc.

The following are the percentages to be added to the Standard List prices delivered London Area.

Delivered ex Merchants Wharf or Depot

	Over 2 tons	Over 100 pieces Under 2 tons	Under 100 pieces Under 2 tons
Best Quality	—	+117½%	+130%
BSS Best do.	—	+10% +117½%	+10% +130%
Tested Quality	—	+37½% +117½%	+37½% +130%
BSS Tested do.	—	+47½% +117½%	+47½% +130%

Delivered ex Manufacturers' Works

Best Quality	+85%	+105%	+115%
BSS Best do.	+10% +85%	+10% +105%	+10% +115%
Tested Quality	+37½% +85%	+37½% +105%	+37½% +115%
BSS Tested do.	+47½% +85%	+47½% +105%	+47½% +115%

STONEWARE DRAIN PIPES, etc.—*continued*

		£	s.	d.
3 in. Land Drain Pipes (in 12 in. lengths)	per 1,000	11	3	6
4 in. do.	„	14	14	6

DAMP COURSE

		£	s.	d.
Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area	per yd. sup.		3	1
Asbestos base ditto 7 lb. per yd. sup. do. do.	„		5	0
Lead lined bitumen ditto 9½ lb. per yd. sup. do.	„		11	3
18 in. ×9 in. British damp course slates	per 1,000	38	6	0
14 in. ×9 in. do. do.	„	29	11	0
9 in. ×9 in. do. do.	„	18	2	6
18 in. ×4½ in. do. do.	„	17	15	6
14 in. ×4½ in. do. do.	„	14	1	9
9 in. ×4½ in. do. do.	„	9	7	6

STONE

		£	s.	d.
Bath Stone—				
Monks Park	per ft. cube		8	0
St. Aldhelm Box Ground	„		9	0
Delivered in railway trucks at South Lambeth B.R. Western Region				
Doulting Stone Random Blocks. Delivered London area	„		8	9
Beer Stone. Delivered London area	„		8	3
Portland Stone—				
Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region	„		8	3½
Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots.				
9 in. × 3 in. Rubbed, weathered, throated and stooled cills	per ft. cube	3	10	8
12 in. × 6 in. do. do.	„	2	10	6
12 in. × 3 in. Plain coping, twice throated	„	1	19	0
12 in. × 3 in. Weathered and twice throated coping	„	2	12	0
14 in. × 6 in. do. do.	„	2	7	0
4½ in. × 9 in. Plinth, rubbed on top and face	„	2	2	0
3 in. sawn two sides Slabs, random sizes	per ft. sup.		7	6
Templates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork	per ft. cube	1	5	9
Do. do. fair one edge for fair faced brickwork		1	10	6
Hard York—				
12 in. × 2 in. Square Steps, rubbed on top and edge	per ft. run		9	0
14 in. × 3 in. Round-nosed Steps, rubbed on top and front	per ft. cube	2	8	0
12 in. × 6 in. Plain Steps, rubbed top and front	„	2	2	0
2 in. Rubbed and Jointed Paving, given sizes	per ft. sup.		8	6
2 in. Sawn Paving, edges squared, in random sizes	per yd. sup.	2	19	3

TILES AND PANTILES

		£	s.	d.
Delivered London area by road in 6 tons or over	per 1,000			
Machine-made Pantiles and French pattern Tiles from Lincolnshire district		29	8	0
Hand-made Pantiles Berkshire district		50	9	0
Hand-made Double Roman Bridgwater district		58	13	6
Hand-made 10½ × 6½ tiles Berkshire district		14	1	6
Machine-made 10½ x 6½ Staffordshire district		13	18	9
Hand-made Hip and Valley tiles per doz.		1	10	0
Machine-made Hip and Valley tiles do.		1	8	0
Concrete tiles 10½ × 6½		8	1	6
do. Interlocking (49S)		19	0	0

NOTE.—Breakage in transit, purchasers' responsibility.

SLATES

		£	s.	d.
First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate Station. Per 1,000 actual				
24 × 12		124	17	4
22 × 12		103	13	8
22 × 11		93	13	6
20 × 12		88	9	0
20 × 10		82	7	9
18 × 10		59	12	9
18 × 9		52	14	6
16 × 10		49	1	3
16 × 8		38	3	8

NOTE.—Breakage in transit, purchasers' responsibility.

TIMBER

		£	s.	d.
Softwood—				
Joinery quality	Ex. Wharf per standard	£110 to £135		
Carcassing quality	do. „	£98 to £102		
1 in. Tongued and Grooved Flooring	do. „	£108	0	0
Hardwood—				
Mahogany—African S.E.	do. per ft. cube	1	10	0
do. Honduras do.	do. „	3	5	0
Oak European do.	do. „	2	5	0
do. Japanese do.	do. „	2	10	0
do. English Logs sawn	do. „	1	17	6
Teak 8 in. average S.E.	do. „	3	15	0
Walnut African Logs sawn	do. „	1	5	0

DOORS (in Lots I-11)

		£	s.	d.
Delivered London area.				
1½ in. 4 Horizontal Panel Pattern 4 in. deal				
2 ft. 0 in. × 6 ft. 6 in.	each	1	12	0
2 ft. 3 in. × 6 ft. 6 in.	„	1	13	0
2 ft. 6 in. × 6 ft. 6 in.	„	1	14	0
2 ft. 9 in. × 6 ft. 6 in.	„	1	16	6
2 in. do. but top panel open. Pattern 4 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	9	0
2 ft. 9 in. × 6 ft. 6 in.	„	2	11	6
2 in. Panel, top panel open. Pattern 2 × G in deal				
2 ft. 6 in. × 6 ft. 6 in.	„	2	1	9
2 ft. 9 in. × 6 ft. 6 in.	„	2	3	6

SUNDRIES

		£	s.	d.
Delivered London area.				
1 in. Wood Wool Slabs, 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton)	per yd.		5	8
1½ in. do. (67 yds. to 1 ton)	„		7	4
2 in. do. (52 yds. to 1 ton)	„		8	11½
2½ in. do. (45 yds. to 1 ton)	„		10	3
3 in. do. (39 yds. to 1 ton)	„		11	5½
Quantities under 1 ton add 1d. per ½ in. of thickness.				
½ in. imported insulation Board, quantities over 5,000 sq. ft.	per 100 sq. ft.	2	2	6
¼ in. Hardboard do.	„	2	1	6
5/16 in. do. do.	„	3	2	6
3/16 in. Asbestos Flat Building Sheets	per yd. sup.		3	5
¼ in. do.	„		4	7
Roofing Felt, 1-ply	„		1	6
do. 2-ply	„		1	9
Best Scotch Glue in slabs	per ½ cwt.	5	0	0
do. pearl	„	5	5	0
Croid Glue	28 lb.	2	6	0
Cut Nails 3 in. (1-ton lots)	per ton	64	10	0
do. 4 in. and up (1-ton lots)	„	61	0	0
Wire Nails, 3 in. (4-cwt. lots)	per cwt.	3	0	9
do. 4 in. and up (4-cwt. lots)	„	3	0	3

METALS

STEEL JOISTS, ETC.

		£	s.	d.
Basis Joists—				
6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in. 12 in. × 6 in. plain cut to lengths delivered London area	per ton	41	0	0
Extra for sizes				
3 in. × 1½ in. 4 in. × 1¾ in.		3	10	0
3 in. × 3 in.		2	10	0
4 in. × 3 in., 10 in. × 4½ in.		1	10	0
5 in. × 2½ in., 5 in. × 3 in.		1	15	0
4½ in. × 1½ in.		3	5	0
5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in.	per ton		15	0
6 in. × 3 in. 24 in. × 7½ in.	„	2	0	0
6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in.	„	1	5	0
9 in. × 4 in., 10 in. × 5 in., 12 in. × 5 in., 22 in. × 7 in.	„	1	0	0
9 in. × 7 in., 10 in. × 8 in., 12 in. × 8 in., 14 in. × 5½ in., 14 in. × 6 in., 14 in. × 8 in., 15 in. × 5 in., 15 in. × 6 in., 16 in. × 6 in., 16 in. × 8 in., 18 in. × 7 in., 18 in. × 8 in., 20 in. × 6½ in., 20 in. × 7½ in.	„		10	0
Steel angles average price		42	15	0
Steel tees average price		43	15	0
Fabricated work delivered London—				
R.S. Joists cut and fitted		57	10	0
Compound girders		63	5	0
Stanchions		68	10	0
Compound stanchions		72	10	0
In Roof Work—Trusses and Purlins	„	85	5	0
Average prices not for awkward work.				
Angle cleats and ⅝ in., ¾ in. and ⅞ in. bolts average price London area	per cwt.	4	15	0

FERRO-CONCRETE BARS

		£	s.	d.
Mild Steel Ferro-Concrete bars to BSS785 ex London				
Stock ⅝ in. diam., and upwards	„	42	8	6
½ in. diam.	per ton extra	4	7	0
7/16 in. do.	„	3	7	0
⅜ in. do.	„	2	9	6
½ in. do.	„	1	12	0

MILD STEEL TUBES

Tubes to BSS1387 and Fittings. List prices and following discounts:

Galvanised Tube—	W.I. Fittings	Malleable Fittings
Class A + 7½%		
Class B + 18½%	Light + 32½%	Malleable List—32½% + 40%
Class C + 35¾%	Heavy + 40%	
Black—		
Class A — 14½%		
Class B — 2½%	Light + 19¾%	Malleable List—32½%
Class C + 11¼%	Heavy + 27¼%	

C.I. HALF-ROUND GUTTERS

Delivered London per yd. in 6-ft. lengths

	Gutters	Nozzles	Stop Ends
3 in.	3/5½	3/2	/11
3½ in.	3/10½	3/5	/11
4 in.	4/11½	3/10	1/4
4½ in.	5/5½	4/4	1/7
5 in.	6/1	4/8	1/11

METALS—*continued*

C.I.O.G. Gutters

	Gutters	Nozzle	Stop Ends
3 in.	4/7	4/1	1/1
3½ in.	5/1½	4/1	1/4
4 in.	5/8	4/4	1/7
4½ in.	6/1	4/11	1/11
5 in.	6/8	5/8	2/2

C.I. Rain-water Pipes

Per yd. in 6-ft. lengths	Pipe	Bends	Branches
2 in.	7/7	3/10	5/7
2½ in.	7/7	4/4	7/5
3 in.	8/6	5/5	8/1
3½ in.	9/8	6/4	9/8
4 in.	11/2½	7/9	11/6

L.C.C. Coated Soil Pipes

2 in.	8/7½	6/8	8/1
2½ in.	9/0½	7/4	10/1
3 in.	10/2	8/1	11/11
3½ in.	11/4½	10/1	13/11
4 in.	12/11½	11/3	16/5

Above prices for gutters, rain-water and soil pipes for under 5 cwt. lots only. Lots over 5 cwt. see List No. 3300 dated February 1, 1955, plus 7½% and tonnage allowance. 4-ton lots 5 per cent., 2-ton lots 2½ per cent.

L.C.C. Coated Drain Pipes

In 9-ft.

	cwt.	qr.	lb.	per yd.	Bends	Branches
4 in.	1	1	17	27/4	19/3	34/-
6 in.	2	0	1	40/9	51/-	81/9

Asbestos Rain-water Pipes and Fittings

All less 17½ per cent. discount.

		2 in.	2½ in.	3 in.	4 in.
Pipes 6-ft. lengths	per yd.	3/9	4/-	4/10	6/5
Shoes	each	2/5	2/8	3/2	4/3
Single Branches	,,	3/9	4/6	5/4	7/6
Bends square or obtuse	,,	2/8	2/11	3/9	5/4
Swan Necks 4½ in. proj.	,,	2/11	3/9	4/3	5/11
do. 6 in. do.	,,	3/2	3/9	4/10	6/5

Asbestos O.G. Gutters and Fittings

		4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths	per yd.	3/7	3/11	4/8	5/7½
Drop ends	each	2/10	3/4	3/10	4/7
Stop Ends	,,	/10	/11	1/-	1/2
Angles	,,	2/11	3/5	4/1	4/10
Nozzles	,,	2/10	3/4	3/10	4/7
Union Clips	,,	1/5	1/8	2/1	2/5

Asbestos Half-Round Gutters and Fittings

		3 in.	4 in.	4½ in.	5 in.	6 in.
Gutters 6-ft. lengths	per yd.	2/6	2/11½	3/0½	3/7	5/-
Drop ends	each	2/1	2/5	2/8	2/11	4/3
Stop ends	,,	/9	/10	/11	1/-	1/2
Angles	,,	2/5	2/8	2/11	3/2	4/3
Nozzles	,,	2/1	2/5	2/8	2/11	4/3
Union Clips	,,	1/-	1/1	1/2	1/4	2/-

	Per ton basis in London £ s. d.
Iron—Staffordshire Crown Merchant Quality	43 12 6
Mild Steel Bars	39 16 6
Mild Steel Hoops	41 3 6

	Ex Merchant's Stock per ton Two-ton lots £ s. d.
Soft Sheets C.R. and C.A.—	
20 gauge	52 8 6
24 gauge	54 18 6
26 gauge	57 18 6
Galvanised Corrugated sheets 6 ft. to 9 ft.—	
20 gauge	60 6 0
24 gauge	63 16 0
26 gauge	69 1 0
Galvanised flat sheets C.R. and C.A.—	
20 gauge	61 6 0
24 gauge	64 16 0
26 gauge	70 1 0

ALUMINIUM AND ALUMINIUM ALLOYS

(Base prices)		£ s. d.
Sheet BS 1470 SIC 18 SWG (36 in. wide)	per lb.	2 7½
Sheet BS 1470 NS 3 Utility 18 SWG (36 in. wide)	,,	2 4½
Coiled strip BS 1470 SIC 18 SWG (24 in. wide)	,,	2 6½
Coiled strip BS 1470 NS 3 Utility 18 SWG (24 in. wide)	,,	2 4
Coiled strip for flashing 99.7% purity 22 SWG (12in. wide)	,,	2 9
Corrugated sheet BS 1470 NS 3 Utility Circular Profile 8 ft. × 32 in. × 20 SWG	per sheet	1 8 6
Corrugated sheet BS 1470 NS 3 Utility Industrial Profile 8 ft. × 31¼ in. × 20 SWG	,,	1 13 9
Corrugated sheet BS 1470 NS 3 Utility Mansard Profile 8 ft. × 31¼ in. × 20 SWG	,,	1 7 8
Extruded section BS 1476 E1C simple moulding	per lb.	2 5
Extruded section BS 1476 E1C 1 in. diam. round	,,	2 2½
Extruded section BS 1476 HE10WP simple angle	,,	2 8
Extruded section BS 1476 HE10WP 1 in. diam. round	,,	2 7
Tubing BS 1471 T1C 1½ in. O/D × 20 SWG	,,	3 11½
Tubing BS 1471 HT10WP 1½ in. O/D × 20 SWG	,,	5 2

PLUMBERS' BRASS WORK, etc.

Delivered in London area.

All per doz.	M.O.H. ¼ in.	⅜ in.	1 in.	1¼ in.	1½ in.	2 in.
Screwdown bib cocks Crutch head for iron	87/-	128/8				
Toilet bib cocks for iron	109/-	158/5				
Screwdown stop cocks for iron	66/-	95/9	188/-	363/-	522/6	917/6
do. with two unions for lead	89/-	132/-	234/4	472/-	623/6	1389/6
Double nut boiler screws	18/8	26/5	47/6	48/6	67/-	93/6
Heavy Croydon ball valves	77/-	193/6	312/5	568/8	734/10	—
Plumbers' union brass lead to iron	19/6	23/6	38/6	52/10	70/6	165/-
	1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
Caps and screws	33/-	40/8	59/6	92/5	118/10	155/3
Brass sleeves		31/11	31/11	56/2	74/10	91/5
	1¼ × 6 lb.		1½ × 6 lb.	2 × 7 lb.	3 × 7 lb.	
Lead P. trap with brass cleaning screws	66/-		82/-	131/-	224/-	
Lead S. trap do.	79/-		98/-	161/-	288/-	

		s. d.
Solder		
Plumbers'	per lb.	3 9
Tinmen's	,,	4 6
Blow pipe	,,	4 7

Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 41¾d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 3 cwt.

	Extra d.	Total per lb. d.
⅛ in. × 19 gauge	12½	54½
¼ in. × 19 ,,	11½	53
1 in. × 18 ,,	9½	51½
1¼ in. × 18 ,,	9	50¾
1½ in. × 18 ,,	9	50¾
2 in. × 17 ,,	10⅜	52½

		£ s. d.
Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras	per ton	433 0 0

Zinc

			£ s. d.
Sheet Zinc	10 gauge (25 SWG) 5 cwt. lots upwards	per cwt.	8 11 6
do.	12 gauge (23 SWG)	,,	8 9 9
do.	14 gauge (21 SWG)	,,	8 8 9

Brass Tubes

		s. d.
Brass tubes basic price, plus gauge and manufacturing extras	per lb.	2 9½

LEAD SHEET AND PIPES

Basis selling price in minimum one-ton delivery to one address in London or Home Counties.

		£ s. d.
Lead Sheet, English, 3½ lb. substance and upwards	per ton	143 5 0
Lead Water Pipe in coils	,,	144 10 0
Lead Soil Pipe 10 ft. or over 2 in. to 4 in. dia.	,,	146 0 0
do. over 4 in. dia.	,,	148 0 0
Lead Gas or Untinned Compo pipe	,,	146 0 0
Extras over Basis for quantities under 1 ton		
5 cwt. and under 1 ton	per cwt.	2 0
3 cwt. do. 5 cwt.	,,	4 0
1 cwt. do. 3 cwt.	,,	6 0

Smaller quantities than 1 cwt. priced specially.
Supplying sheet lead and lead pipe to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.
Allowance for Old Lead, collected £98 10s. 0d. per ton weighed at buyer's works.

PLASTER, etc.

				£ s. d.
Coarse Pink in 1-ton loads and over	Delivered on Site		per ton	7 11 9
do. White	do.	do.	,,	7 19 6
Sirapite Coarse	do.	do.	,,	7 14 0
do. Fine	do.	do.	,,	8 2 0
Blue Lias Lime in 6-ton loads			,,	6 14 6
Hydrated Lime	do.		,,	5 17 6
Lump Lime	do.		,,	5 7 0
White Keen's or Parian Cement in 1-ton loads			,,	10 17 0
Pink Keen's or Parian Cement in 1-ton loads			,,	10 11 9
Granite Chips in 6-ton loads			,,	2 7 3
Hair			per cwt.	4 17 6
Gypsum Plaster Lath or Base Board ⅜ in. thick 600 yds. and over in one delivery.	Delivered site		per yd.	2 3½
1,200 yds.			,,	2 2½
Do. Insulating do. ½ in. thick 600 yds. and over in one delivery.	Delivered site		,,	2 11½
1,200 yds.			,,	2 10½
Gypsum Plaster Wall Boards, 3 and 4 ft. wide 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery.	Delivered site		,,	2 6½
1,200 yds.			,,	2 5½
Do. Insulating do. ½ in. thick 600 yds. and over in one delivery.	Delivered site		,,	3 2½
1,200 yds.			,,	3 1½

PAINT AND DISTEMPER

Delivered London area		£	s.	d.
Ceiling Distemper	per cwt.	1	7	6
Washable Distemper	,,	5	5	0
Gloss Paint	per gal.	2	10	0
Snowcem cement paint (in 1 cwt. drums)	per cwt.	3	11	0
LEAD PRODUCTS AND OILS				
Ground White Lead, 1 cwt. kegs	per cwt.	8	18	0
Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins	per gal.	3	2	0
Genuine Red Lead, Dry, 1 cwt. keg	per cwt.	7	2	0
Genuine Linseed Oil Putty, 1 cwt. keg	,,	2	11	0
Size XD quality, 28 lb.	per tin		9	0
Raw Linseed Oil (5 gal.) drums extra	per gal.		14	0
Boiled Linseed Oil (5 gal.) do.	,,		14	6
SUNDRIES.				
Turpentine substitute (5 gal.) drums extra			5	6½
do. do. (40 gal.) do. do.	,,		4	8½
Solignum, Brown (5 gal. cans) Exterior			6	10
Creosote (40 gal. barrels)	,,		2	0
Paste Powder (1 lb. packets)	per lb.		1	6
White Lining Paper	per piece		1	0

VARNISHES, etc.

Delivered London area.				
Oak Varnish, Outside or Inside	per gal.	1	12	6
Oak Pale Copal do.	,,	1	18	0
Hard Drying Oak for Inside	,,	2	0	0
Crystal Paper Varnish do.	,,	2	0	0
Eggshell Flat Varnish do.	,,	2	14	0
Finest Carriage Varnish	,,	2	10	0
Front Door Varnish	,,	2	0	0
Japan Gold Size	,,	1	12	6
Black Japan	,,	1	14	0
Brunswick Black	,,	1	10	0
Berlin Black	,,	1	5	0
Terebene	,,	1	8	0
Knotting (1 gal, bottles free)...	,,	2	2	0
French and Brush Polish (do.)	,,	1	18	0

GLASS

Delivered London area.	Per ft. super s. d.
18 oz. Sheet Glass Ordinary Glazing Quality. Cut Sizes	6½
24 oz. ,, ,, ,, ,, ,, ,,	8¼
26 oz. ,, ,, ,, ,, ,, ,,	11
32 oz. ,, ,, ,, ,, ,, ,,	1 2½
⅛ in. Rolled Plate	9
3/16 in. and ¼ in. Rough Cast	1 1

	Per ft. super s. d.
⅛ in. Figured Rolled and Cathedral, Standard patterns: White	9
do. Standard Tints	1 4½
do. Special Tints	2 9
⅛ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating	1 1
¼ in. Wired Cast	1 2
¼ in. Georgian Wired Cast	1 2½
Hollow Glass Blocks—	Each
P.B.2 5⅜ × 5⅜ × 3⅞ in.	2 9
P.B.3. 7⅜ × 7⅜ × 3⅞ in.	4 2
P.B.32 7⅜ × 7⅜ × 3⅞ in.	4 2
Radiused Corner Blocks to match up with—	
P.B.2	5 3
P.B.3	6 9
P.B.32	6 9
¼ in. Polished Plate Glass, G.G. Quality—	Per ft. super
In plates not exceeding 2 ft. sup.	3 7
,, ,, ,, 5 ft. sup.	4 5
,, ,, ,, 45 ft. sup.	5 1
,, ,, ,, 100 ft. sup.	5 6
¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality —Not exceeding 135 ft. sup. or 250 in. one way or 135 in. both ways	8 4
Not exceeding 180 ft. sup. or ditto	11 3
Not exceeding 200 ft. sup. or ditto	16 0
Plates exceeding 200 ft. sup., prices on application.	
Substances other than ¼ in. Polished Plate at Special Prices.	

Quantity Tariff—Sheet and Sundry Glass.

The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

Description of Glass	Minimum quantity	Per ft. sup. s. d.
18 oz. sheet O.Q.	3,000	4⅞
24 oz. ,, ...	2,000	6½
26 oz. ,, ,, ...	2,000	8⅛
32 oz. ,, ,, ...	2,000	11⅜
⅛ in. Rolled Plate	1,000	7½
⅛ in. Figured Rolled and Cathedral Standard Patterns, White	1,000	7⅞
⅛ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte...	1,000	10⅛
3/16 in. and ¼ in. Rolled Plate or Rough Cast ...	2,000	11
¼ in. Wired Cast, Hexagonal...	2,000	11⅞
¼ in. Georgian Wired Cast	2,000	1 0⅛

The Builder CURRENT RATES OF WAGES

AS FROM OCTOBER 3, 1955. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors.)

KEY TO SCHEDULE OF GRADE RATES.

Grade Classification.	A	A1	A2	A3
Craftsmen	4/-	3/11½	3/11	3/10½
Labourers	3/5½	3/5	3/4½	3/4

Town.	Grade.
Aberavon	A
Aberdare	A
Abergavenny	A
Abingdon	A2
Accrington	A
Addlestone	A
Afan Valley	A
Aldeburgh	A1
Aldershot District	A1
Alfreton UD	A
Alnwick UD	A
Altrincham	A
Amble	A
Ambleside	A2
Amersham	A1
Ammanford	A
Andover	A2
Anglesey, Isle of	A2
Ardingly	A2
Arundel	A2
Ascot	A2
Ashbourne RD	A2
Ashbourne UD	A2
Ashby-de-la-Zouch UD	A
Ashby Woulds UD	A
Ashford (Kent)	A2
Ashford (Middlesex)	A
Ashington UD	A
Ashtead	A
Ashton-under-Lyne	A
Aspatria and Brayton	A2
Atherstone RD	A
Attleborough	A2
Axminster	A2
Aylesbury	A2
Aylesham	A2
Bagshot	A2
Bakewell UD	A2
Banbury	A1
Bangor	A2
Barnard Castle UD	A
Barnoldswick UD	A
Barnsley CB	A
Barnstaple	A2
Barrow-in-Furness	A
Barrow-upon-Soar RD (exc. Thrussington A2)	A
Barry	A
Basford RD (exc. Willough-by-on-the-Wolds A1)	A
Basingstoke	A1
Bath	A
Batley MB	A
Baxterley	A1
Beaconsfield District	A
Bearl	A
Beccles	A2
Bedale RD	A
Bedford	A
Bedlington	A
Bedlingtonshire UD	A
Bedwas	A
Beeston & Stapleford UD	A
Belper UD	A
Belton	A
Berkhamsted	A
Berrington	A1
Berwick Borough	A
Beverley MB	A
Bewdley MB	A
Bexhill-on-Sea	A2
Bideford	A2
Biggleswade	A2
Billericay	A
Billing	A
Billingham UD	A
Bilsthorpe	A
Bilston MB	A
Birchington	A2
Birkenhead	*
Birmingham CB	†A
Bishop Auckland UD	A
Bishop's Stortford	A
Bishops Castle MB	A2
Bispham	A
Blackburn	A
Blackpool	A
Blackwell RD	A
Blandford	A2
Blaydon UD	A
Blidworth	A
Blyth B.	A
Bodmin	A2
Bognor Regis	A2
Boldon UD	A
Bolsover UD	A
Bolton	A
Boston MB	A
Bourne End	A
Bournemouth District	A
Brackley MB	A2
Bracknell	A2
Bradford CB	A
Bradford-on-Avon	A2
Braintree	A1
Brandon & Byshottles UD	A
Brecon—Borough of	A1
Breconshire, County of ...	‡A2
Brent Knoll	A2
Brentwood	A
Bridgend	A
Bridlington MB	A
Bridlington RD	A1
Bridgnorth MB	A1
Bridgnorth RD	A2
Bridgwater	A1
Brierfield	A
Brighouse MB	A
Brighton & Hove	A
Bristol District	A
Broadstairs	A2
Bromsgrove UD	A
Broughton, Flint	A
Buckfastleigh	A2
Buckingham	A2
Buckley	A
Bungay	A2
Burnham-on-Crouch	A2
Burnham-on-Sea	A2
Burnley	A
Burton-on-Trent C.B.	A
Bury	A
Bury St. Edmunds	A1
Buxton	A
Byfleet	A1
Caernarvon	A2
Caernarvonshire, Cnty. of	‡A2
Calder Valley	A
Camberley District	A2
Cambridge	A
Cannock UD	A
Canterbury	A2
Cardiff	A
Cardiganshire, County of	‡A2
Carlisle	A

Continued on page 842.

CURRENT RATES OF WAGES—Continued

Town.	Grade.
Carlton UD	A
Carmarthen—Borough of	A1
Carmarthenshire, Cnty of	‡A2
Carnforth	A
Castleford UD	A
Caterham	A
Chapel-en-le-Frith	A
Chard	A2
Charmy Down	A
Chatham District	A
Chatteris	A2
Cheadle (Staffs) RD	A
Chelmsford	A
Cheltenham	A
Chepstow	A1
Chertsey	A
Chester	A
Chester-le-Street UD	A
Chesterfield MB	A
Chesterfield RD	A
Chichester	A2
Chipping Norton	A2
Chipping Sodbury	A2
Chippenham (inc. Chippenham Within and Hardenhuish)	A2
Cirencester	A2
Chorley	A
Clacton	A1
Clay Cross UD	A
Cleethorpes MB	A
Clevedon	A1
Cleveleys	A
Clitheroe	A
Coalville UD	A
Cobham (Surrey)	A
Colchester	A
Colne	A
Colwyn Bay	A1
Congleton	A1
Consett UD	A
Conway	A1
Corby UD	A
Cornwall, County of	‡A2
Corsham District	A
Coventry CB	A
Cranbrook	A2
Cranleigh	A2
Cranwell Aerodrome Site	A1
Crawley	A
Crewe	A
Crewkerne	A2
Cromer	A1
Crook and Willington UD	A
Crowborough	A2
Cuckfield	A2
Cwmbran	A
Dalton-in-Furness	A
Darlington CB	A
Dartmouth	A2
Darwen	A
Daventry MB	A2
Deal	A2
Denbigh Town	A2
Derby CB	A
Devizes	A2
Devon, County of	‡A2
Dewsbury CB	A
Didcot	A2
Diss	A2
Doncaster CB	A
Dorchester	A2
Dorking	A
Dorset, County of (excepting Poole, Swanage and Wimborne A1)	A2
Dover	A2
Dovercourt	A
Driffield UD	A1
Drigg & Carleton	A
Droitwich MB	A
Dudley CB	A
Dunstable	A
Durham B	A
Eastbourne	A
E. Glam. & Mon. Val.	A
East Grinstead District	A2
East Kesteven RD	A2
East Retford MB	A
Eastwood (Notts) UD	A
Ebbw Vale & District	A
Edenbridge	A2
Ely	A2
Epping	A
Evesham MB	A2
Exeter	A
Exmouth	A2
Fakenham	A2
Falmouth	A2
Fareham	A
Faversham	A2
Felixstowe	A1
Filey UD	A
Fleetwood	A
Flint MB	A
Folkestone	A2
Frinton	A1
Frome	A1
Gainsborough UD	A
Gateshead CB	A
Gillingham (Dorset)	A2
Gillingham (Kent)	A1
Glastonbury & Street	A2
Glossop	A
Gloucester	A
Gloucestershire, Cnty. of	‡A2
Godalming	A2
Goole, MB	A
Goole RD (part—Airmyn, Hook)	A
Gosport	A
Grantham MB	A
Gravesend	A
Grays Thurrock UD Area	A
Great Yarmouth	A
Grimsby CB	A
Grimsby RD (part)	A
Guildford District	A2
Halesowen MB	A
Halifax CB	A
Halstead	A2
Haresfield	A1
Harlow	A
Harpenden	A
Harrogate MB	A
Hartlepool B	A
Harwell	A2
Harwich	A
Haslemere	A2
Hastings	A2
Hatfield (Herts)	A
Havant	A
Haywards Heath	A2
Heanor UD	A
Hemel Hempstead	A
Henley-on-Thames	A2
Hereford	A2
Herefordshire, Cnty. of	‡A2
Herne Bay	A2
Hertford	A
Hexham RD	A
Hexham UD	A
Heysham	A
Heywood	A
Higham Ferrers MB	A
High Wycombe	A
Hinckley UD	A
Hitchin	A
Hoddesdon	A
Holywell	A
Horley	A2
Horncastle UD	A2
Horsham	A2
Horwich	A
Huddersfield CB	A
Hull	A
Hunstanton	A2
Huntingdon (Staffs)	A
Ilkeston MB	A
Ilkley UD	A
Ipswich	A
Isle of Sheppey	A2
Isle of Thanet	A2
Isle of Wight	A2
Ilfracombe	A2
Jarrow B	A
Keighley MB	A
Kendal	A
Kenilworth UD	A
Kettering MB	A
Keynsham	A
Kidderminster MB	A
Kingskerswell	A1
King's Lynn	A1
Kingsteignton	A1
Kirkham	A
Knaresborough UD	A
Knutsford	A
Lancaster	A
Leamington MB	A
Leatherhead	A
Leeds CB	A
Leek UD	A
Leicester CB	A
Leighton Buzzard	A1
Leiston	A2
Leominster	A2
Letchworth	A
Lewes	A2
Lichfield MB	A
Lincoln CB	A
Liskeard	A2
Littlehampton	A2
Liverpool	*
Llandudno	A1
Llanelly (incl. Llanelly RD)	A
Llanfairfechan	A2
Llangollen	A2
London	*
Long Eaton	A
Looe	A2
Loughborough MB	A
Louth MB	A1
Lowestoft	A
Loxton	A2
Ludlow MB	A2
Ludlow RD	A2
Luton	A
Lyme Regis	A2
Lyneham (Devon)	A2
Lytham	A
Macclesfield	A
Maidenhead	A
Maidstone	A
Maldon (Essex)	A1
Maltby UD	A
Malton UD	A2
Malvern UD	A1
Manchester	A
Manningtree	A1
Mansfield MB	A
March	A2
Margate	A2
Market Harborough RD	A1
Market Harborough UD	A
Market Rasen UD	A2
Martock	A2
Maryport	A
Matlock UD	A
Melksham	A2
Melton Mowbray UD	A1
Merionethshire	A2
Merthyr	A
Mexborough UD	A
Middlesbrough CB	A
Middleton	A
Middlewich	A
Mildenhall	A2
Milford Haven UD	A1
Minehead	A2
Monmouth—Borough of	A1
Monmouthshire	A1
Morecambe	A
Moreton Valence	A2
Morley	A
Morpeth B	A
Morpeth RD	A
Mundesley	A2
Nantwich	A
Neath & Valley	A
Nelson	A
Newark MB	A
Newbury	A2
Newcastle-on-Tyne CB	A
Newcastle-under-Lyme	A
New Forest District	A1
Newmarket	A1
Newport, Mon.	A
Newport Pagnell	A2
Newquay	A2
Newton Abbot	A1
Normanton UD	A
Northallerton District	A
Northallerton UD	A
Northampton CB	A
North Shields	A
North Walsham	A2
Northwich	A
Norton Radstock	A1
Norwich	A
Nottingham CB	A
Nuneaton MB	A
Oakham RD	A2
Oakham UD	A2
Okehampton	A2
Oldham	A
Ongar	A
Ormskirk	A
Ossett & Horbury	A
Oswestry	A2
Oundle UD	A2
Oxford	A
Oxted	A1
Padstow	A2
Paignton	A1
Par	A2
Pembrokeshire (except Milford Haven)	A2
Penmaenmawr	A2
Penrith UD	A1
Penzance	A2
Peterborough, Soke of (Eastern Regional portion)	A1
Petersfield	A2
Pickering	A2
Plymouth	A
Pontefract MB	A
Pontypool & District	A
Pontypridd District	A
Portheawl	A
Portishead	A
Portland Bill	A1
Portsmouth	A
Port Talbot	A
Preston	A
Princetown	A2
Pudsey MB	A
Pulborough	A2
Radnorshire, County of	‡A2
Ramsgate	A2
Raunds UD	A
Rayleigh	A
Reading	A
Redcar B	A
Redditch UD	A
Redhill & Reigate	A
Rhondda Valley	A
Richmond B (Yorks)	A
Ripon MB	A2
Rochdale	A
Rochester	A1
Ross-on-Wye	A2
Rossendale Valley	A
Rotherham CB	A
Royston	A1
Rugby MB	A
Rugeley UD	A1
Rushden UD	A
Saffron Walden	A2
St. Albans	A
St. Austell	A2
St. Helens	A
St. Neots	A2
Salisbury City	A2
Salisbury Plain	A2
Sandy	A2
Sawbridgeworth	A
Saxmundham	A2
Scarborough MB	A
Scunthorpe MB	A
Seaford & Newhaven	A2
Selby UD	A
Sevenoaks	A
Shaftesbury	A2
Sheerness	A2
Sheffield MB	A
Shepton Mallet	A2
Sherborne	A2
Shipley	A
Shoeburyness	A
Shoreham	A
Shrewsbury MB	A
Sirhowy Valleys	A
Sittingbourne	A2
Skegness UD	A1
Skipton UD	A
Sleaford UD	A1
Slough, Windsor & Eton District	A1
Smethwick CB	†A
Snittisham	A2
Solihull UD	A
Somerset, County of	‡A2
Southampton and Eastleigh	A
Southend-on-Sea Dist.	A
Southport	A
South Shields CB	A
Southwold	A2
Spalding UD	A1
Stafford MB	A
Staines	A
Stamford MB	A1
Stantonwick	A
Stevenage	A
Stockport	A
Stockton RD	A
Stockton-on-Tees B.	A
Stoke-on-Trent CB	A
Stoke Orchard	A1
Stourbridge MB	A
Stourport UD	A2
Stowmarket	A1
Stratford-on-Avon MB	A
Stroud (RD Area)	A1
Sunderland CB	A
Sunningdale	A1
Sutton Coldfield MB	A
Swadlincote UD	A
Swaffham	A2
Swanage District	A1
Swansea	A
Swindon District	A
Swinton UD	A
Tamworth MB	A
Taunton	A2
Tavistock	A2
Tenterden	A2
Teignmouth	A2
Tewkesbury	A1
Thames Haven	A
Thetford	A2
Thirsk RD	A
Thorpe Bay	A
Thurrock UDC Area (North of to Billericay)	A
Tilbury	A
Todmorden MB	A
Tonbridge	A1
Torquay	A1
Totnes	A1
Tring	A2
Trowbridge	A2
Truro	A2
Tunbridge Wells	A1
Tynemouth CB	A
Ulverston	A
Uppingham (Salop)	A1
Uttoxeter RD	A2
Uttoxeter UD	A1
Wakefield CB	A
Wakefield RD	A
Wallsall CB	A
Wallsend B	A
Walsden	A
Walton-on-Naze	A1
Ware	A
Warminster	A2
Warrington	A
Warwick MB	A
Wednesbury MB	A
Wellingborough UD	A
Wellington UD	A
Wellington (Somerset)	A2
Wells (Norfolk)	A2
Wells (Somerset)	A2
Welwyn	A
Welwyn Gar. City	A
West Bromwich CB	A
Westbury	A2
Westcliff-on-Sea	A
Westerham	A1
West Hartlepool CB	A
Westmorland (except Kendal)	A2
Weston-super-Mare	A1
Weybridge	A
Weymouth (including Portland Bill, excluding Portland Stoneyards)	A1
Whitby UD	A1
Whitby RD	A1
Whitehaven	A
Whitley & Monkseaton UD	A
Whitstable and District	A2
Wickford	A
Widnes	A
Wigan	A
Wigton	A2
Wilmslow	A
Wilts. County of	‡A2
Wimborne	A1
Wincanton	A2
Winchester	A1
Windermere	A2
Wisbech	A2
Witham	A1
Withernsea UD	A
Woking	A1
Wokingham	A2
Wolverhampton CB	A
Wolverton District	A2
Woodbridge	A2
Woodhall Spa UD	A
Woodstock	A2
Worcester CB	A
Workington	A
Worksop MB	A
Worthing	A2
Wrexham (incl. Cefn)	A
Wroughton	A1
Wylam	A
Wymondham	A2
Yate	A2
Yeovil Borough	A1
York CB	A
Ystalyfera	A

For Birkenhead, Liverpool and London the rates are:—Craftsmen, 4s. 1½d.; Labourers, 3s. 7d. In the case of London the rate beyond the 12-mile radius is:—Craftsmen, 4s. 1d.; Labourers, 3s. 6½d. †Plus 2d. per working day. ‡This is the County rate and applies except where higher grades are stated.

NOTE.—Carpenters and Joiners providing own tools when employed in establishments operating under the Supplementary Rules for Woodworking Factories and Shops, receive 2d. per day; when employed on other building industry work, 4d. per day.

WOMEN'S RATES.—In all districts throughout the country the rate of wages for women engaged in craft processes is 3s. 1½d. per hour. Women engaged on work other than craft processes, 2s. 9½d. per hour.

For Building Trade Wages in Scotland see page 846

NEWS IN BRIEF

EMPLOYMENT IN BUILDING

AT the end of September, 1,474,000 were employed in building and contracting, a decrease of 5,000 in the course of the month, according to Ministry of Labour statistics.

WORKS OF ART IN THE COMMONS

The report of an advisory committee on works of art in the House of Commons has recently been published. Copies, price 1s., from the Stationery Office.

DERBYSHIRE GREEN BELT

Preliminary steps towards the establishment of a green belt between Derby and Nottingham have now been taken, it was reported at a meeting of Derbyshire County Council on November 2.

INCREASED BUILDING COSTS

A ten per cent. increase in the cost of building a new Council Chamber and three-storey office extension has been reported by Warwickshire County Council Buildings Committee. The estimated cost of the Chamber is now £71,858 (compared with an earlier estimate of £60,000) and the office block is now expected to cost £69,142. A tender of £124,751 has been accepted for work on the projects.

THE BSI HANDBOOK

In response to many demands, the British Standards Institution has published a new edition of its "Building Handbook" in loose-leaf form. This step has been taken to make it easier, and in the long run less expensive, for those who use the Handbook to keep its contents up to date. The new volume contains summaries, correct to September 1, 1955, of 273 British Standards covering all requirements in the great bulk of contemporary building practice. New and amended standards are continually emerging from BSI committees, and for the benefit of Handbook users these will be condensed into Addendum Sheets of suitable size for insertion in the binders. These sheets will be issued periodically in packets rather than as each standard appears, in order to limit the packing and postage costs involved for Handbook users in keeping their volumes up to date. The new handbook costs £3 10s., and is obtainable from BSI at British Standards House, 2, Park-street, W1.

ELECTRICAL WIRING FILM

A film entitled "Give Us A Ring," describing the advantages of the ring circuit electrical wiring system, has recently been produced by the British Electrical Development Association. The film explains the benefits of this system in simple non-technical terms. The story is that of a newly-wed couple who have been given a new house and a large number of electrical appliances. They are shown, by the architect and an electricity board representative, how their new house can be wired to provide as many points as they require in every room. A practical demonstration is shown in the architect's own house. This film, which runs for 26 minutes, has been designed for general audiences and, in addition, emphasises to architects and builders the need for the installation of sufficient plug points to cope safely with the increasing number of electrical gadgets on the market. Copies of the film are available for loan, free of charge, from BEDA, 2, Savoy Hill, London, WC2.

IAAS FILM SHOW

A programme of instructional films will be shown to members of the Northern Counties Branch of the Incorporated Association of Architects and Surveyors at the Parkinson Building, Leeds University, Woodhouse-lane, Leeds 2, on November 14 at 7.30 p.m. The films to be shown are "Concreting and Decorating," "How Tree Roots Can Damage Buildings" and "Parapet Walls."

FAS ACTIVITIES

The annual dinner and ball of the Faculty of Architects and Surveyors will be held on November 29, at the Park Lane Hotel. The High Commissioner for Pakistan has consented to attend and propose the toast of the Faculty. Among other guests will be Sir Alfred Bossom, MP, and presidents of kindred bodies. Tickets from the Secretary, 68, Gloucester-place, W1. The Faculty's AGM will be held at 2.30 p.m. on November 24, at headquarters.

LONG SERVICE

The AUBTW has presented Mr. T. Carter, for 36 years a bricklayer in the building department at Fort Dunlop, with an illuminated certificate and a gold medal upon his completing 50 years of active membership of the Union. It has also made him a life member. Mr. Carter has been a bricklayer for 60 years. At the age of 73 he still cycles regularly to work.

OUTDOOR ADVERTISING AWARDS

National Outdoor Advertising Awards are to be presented this year by the "World Press News and Advertisers' Review" in conjunction with various associations, including the Town and Country Planning Association. There will be three classes of entry, one of them for the improvement of sites. This award will be given to the advertiser or advertising contractor who, in the opinion of the judges, has made the most effective improvement of a site by outdoor advertising. The panel of judges has been invited by the Town and Country Planning Association, and is headed by Sir George Pepler. A Challenge Cup will also be awarded to the entry who has done most during the year to improve outdoor advertising. Judging will take place in February, 1956, and entries should be submitted by December 31 next. Details from National Outdoor Advertising Awards, c/o World's Press News Publishing Co., Ltd., 9-10, Old Bailey, EC4.

DONCASTER CIVIC CENTRE

A scheme for a civic centre on a 34-acre site at Doncaster is to be considered at a special meeting of the Town Council. Mr. Frederick Gibberd, FRIBA, MTPI, is expected to be in attendance to deal with points raised. The scheme envisages a central square with a 10-storey town hall on stilts, to provide a clear view across the open spaces and allow free movement of traffic and pedestrians. The buildings would include municipal offices, health clinic, concert hall and police headquarters. The suggested site is in the Waterdale area, and the plan involves the demolition of the art gallery and museum, the arts centre and some condemned house and shop property. Work has already started on the first part—a college of further education at an estimated cost of £750,000.

NEW APPOINTMENT

The Minister of Housing and Local Government has appointed Dr. J. S. Carter, OBE, FRIC, as chief inspector of Alkali Works in succession to Mr. W. A Damon, CBE, FRIC, who retires on December 4.

INSULATING MATERIALS.

Thermal insulating materials, their properties and applications, are the subject of an exhibit by the DSIR at the Building Centre, Store-street, WC1, this month. Samples of most of the materials in common use are on show. They have been provided by the Structural Insulation Association. Each is accompanied by a data sheet reproduced from "The Thermal Insulation of Buildings," a BRS manual to be published by HMSO on November 15 (price 12s. 6d).

PARK ROYAL LABORATORY

In connection with the laboratory erected at Park Royal for Arthur Guinness, Son and Co. (Park Royal), Ltd. (illustrated in our issue of October 14), we have been asked to point out that although the prefabricated superstructure and foundations were designed by Mr. R. G. Emsley, ARIBA, chief architect to the contractors, SECO, Ltd., the scheme as a whole was designed and supervised by Mr. J. E. Hopcraft, LRIBA, staff architect to Arthur Guinness, Son and Co. (Park Royal), Ltd.

FILMS AT BUILDING EXHIBITION

A special show of two new sound films on "Kitchen Planning" and "Single-Stack Drainage" is to be given at 11.30 a.m. on November 17 in the Building Research Station Cinema at the Building Exhibition, Olympia (Stand 454). These films are available on loan free from the Film Officer, Ministry of Works, Lambeth Bridge House, SE1.

BUILDING STANDARDS AT STOURPORT

Charges of Bad Workmanship Confuted

STOURPORT URBAN COUNCIL has accepted a housing committee report expressing confidence in its architect and the contractors who are building 154 houses and flats on Walshes' Estate, and refuting allegations made at the last meeting by Cllr. W. A. Coley that building workmanship was sub-standard.

The chairman of the committee, CLLR. J. W. BULLOCK, said that tenants had been consulted and the only complaints they had made were of a very minor character.

CLLR. COLEY said that he would not alter his opinion. The committee report had not attempted to refute his complaints and he would not withdraw them or make any apology.

The housing committee reported that the contractors had stated that if the allegations, which were damaging to their reputation, were not withdrawn they would take legal action.

PERSONAL COLUMN

Claygate Fireplaces, Ltd., have appointed MR. J. DUNCAN FERGUSON, FCA, as chairman, following the recent death of the Marquis del Moral.

TRADE NEWS

SHOWROOM DISPLAY

A NEW range of products is being displayed by Allied Ironfounders, Ltd., in their showrooms at 28, Brook-street, W1. Of particular interest is the "Rayburn" open fire, which is continuous burning and has a restrictable throat and a concealed draught level. Free-standing, although designed for installation in a recess, it follows the lines of the traditional open fire. The 16-in. model will heat, on average, 2,250 cu. ft. The 18-in. model heats up to 2,500 cu. ft. A range of cookers is also shown, including the No. 1 "Truburn" and the new "Alico 91."

NEW ESTATE CARS

Two new models have been introduced by the Ford Motor Co., Ltd., Dagenham, Essex. They are the "Escort" and the "Squire," two new estate cars, based respectively on the De Luxe Anglia and the De Luxe Prefect. Four passengers can be seated, and if required, the rear seat cushion folds forward and the squab hinges into position, leaving a flat floor and a capacity of 41.5 cu. ft. Large windows in the side panels and a rear-opening window hinged at the roof line give all-round visibility.

A new Thames 7-cwt. van is announced by Ford Motor Company, Ltd. Following the pattern of the Thames 5-cwt. van, this new vehicle has heavier springs, double-acting lever-type shock absorbers and larger tyres to give it the extra carrying capacity.

COPPER WORK LECTURES

The use of copper for roofing and water, gas and sanitation services has resulted in increased demands for lectures and demonstrations by the building engineer of the Copper Development Association, Dr. E. Carr, and his assistants. These lectures can be illustrated with sound films or lantern slides where projection facilities are available. Principals of technical colleges and secretaries of building organisations wishing to take advantage of this service, which is free, are advised to make early application to the Copper Development Association at Kendals Hall, Radlett, Herts.

SALES CAMPAIGN

A large sales-promotion programme for the coming winter has been planned by Dimplex, Ltd., Totton, Southampton, Hants, and is to include the publication of advertisements relating to their portable electric oil-filled radiators in many journals, magazines and national newspapers. The total circulation is expected to amount to more than 30 million readers, and a new 50,000 sq. ft. factory is being completed at Millbrook, Southampton, to assist in meeting the anticipated demand. The company's range of radiators is now available from ½kW to 2kW in all voltages, with a choice of eight colours.

A TRAFFIC BRIDGE

So great has been the number of serious accidents occuring on the Great North Road at Stevenage New Town that Stevenage Development Corporation commissioned Turriff Construction Corporation Ltd., of Warwick, and Thomas Storey (Engineers), Ltd., of London, to build a cycle and pedestrian bridge, together with access roads extending for about a mile, to enable workers to travel safely between their homes and factories. The bridge, a Bailey type, is in 3-spans, each 80 ft. in length, with the centre span supported on piers, and was successfully erected on October 30.

"LARGEST FIRE IN THE WORLD"

An account of the largest fire in industrial history—that at the transmission plant of the General Motors Corporation, Livonia, Michigan, in 1953—and the lessons that can be learned from it are contained in the autumn issue of "The Gypsum Journal," a quarterly published by the Gypsum Building Products Association. The factory was totally destroyed and estimates placed the amount of damage at 50-55 million dollars. Both in Britain and the United States there are many factories which provide conditions similar to those which contributed to the destruction of the General Motors plant. The use of a non-combustible material of low flame spread for a surface finish, such as gypsum plaster, and the application of gypsum planks and boards for partitions and linings is advocated in the article, which brings facts and figures to bear in support of its recommendations. Copies of the Journal from 25, Lower Belgrave-street, SW1.

NEW BIRMINGHAM COLLEGE

The new College of Technology at Gosta Green, Birmingham, designed by H. V. Ashley and Winton Newman, L/FRIBA, was inaugurated by the Queen on November 3. This marks the completion of the first stage of a project which will eventually be known as the Birmingham Colleges of Technology, Art and Commerce. The first section is laid out on nine floors, including a lower ground floor, and extensive facilities and equipment have been installed. In view of the complexity of the electrical supplies, it was decided that the best method would be to install a complete vertical rising main busbar trunking distribution system to supply electricity for lighting and power throughout all floors of the building. This system was "built in" to the fabric of the building. The equipment for the installation was supplied by the General Electric Co., Ltd., Magnet House, Kingsway, WC2, and the installation was carried out by the Midlands Electricity Board; the electrical consulting engineers were Hoare, Lee and Ptnrs.

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OVERSEAS BUILDING

From Our Own Correspondents

INDONESIA.—The Standard Oil Co. in Indonesia has announced plans for the modernisation of its refinery at a cost of about $20m. over 2½ years. This is part of the $80m. capital investment programme for Indonesia announced by this company last year. . . . The Bata Shoe Co. have purchased land at Madan for the erection of their second factory in Indonesia.

The government has agreed to grant large credits for the construction of a sugar-milling factory at Padokan, Djakarta. . . . Surveys are being made in South Sumatra by the Forestry Department for suitable wood to set up a second ply-wood factory. . . . The Department of Industry has granted permits for the building of 26 new assembly shops for wireless sets.

PERU.—The International Bank for Reconstruction and Development has granted a loan to Peru for the sum of $5m. to be spent mainly on a highway maintenance programme. Part of the money is to be spent on obtaining the services of consulting engineers to supervise the programme. A small part of the loan is also to be set aside for a preliminary survey of the Lima-Pucallpa road with a view to making the easternmost part of this road an all-weather highway. An American firm of consultants have been appointed.

The Peruvian Ministry of Public Works has been authorised to enter into a contract with R. G. Le Tourneau Inc., of Longview, Texas, for the construction of a road from a point on the Pan-American highway north of Chiclayo to a navigable point on the Maranon River, a tributary of the Amazon. The estimated cost is about $19,800,000. When built, this road will open up a large area of North-Eastern Peru which is of importance for agriculture, lumber and mining, and many factories will be built to develop the territory.

Construction of a factory for the production of refractory bricks on the outskirts of Lima is to be commenced shortly by Refractarios Peruanas SA, Avenida Argentina 3855, Callao. The company has been formed by the Cerro de Pasco Corporation, the Harbison-Walker Refractories Co., of Pittsburg, USA, and local interests.

Following upon the abolition of the Match Monopoly regulations, a number of firms have applied for permission to build match factories. It is reported that La Fosforera del Norte, a Mexican match company, has asked for permission to establish a factory. . . . An explosives factory is to be erected by a company calling itself Explosivos SA. . . . Another new factory to be built by Fertilizantes Sinteticos SA will supply the nitric acid to the explosives factory. Both factories are to be erected as soon as possible.

SINGAPORE.—Plans have been approved by the Singapore City Council for a large cinema with restaurant to be built at an estimated cost of $1 million at the junction of East Coast road and Brooke road. The building will be air-conditioned. A car park large enough to take 172 cars will be provided on the ground floor which will occupy 27,000 sq. ft. of land. Plans have also been approved for the erection of 27 first-class residential houses on a 31-acre site off

Holland road in Singapore. The scheme is estimated to cost $4½ million and it is hoped that work can begin in the early spring.

The City Council also has details of a large scheme involving the erection of a 10-storey building estimated at $2 million. When completed it will consist of 90 flats and 12 shop-houses, standing on a half-acre site. The building is only part of the scheme which includes a school, hotel, cinema, amusement park and petrol kiosk, spread over a 50-acre site. The total area is capable of holding some 85 shop-houses and more than 400 flats. Tenders are to be called for the building of the first phase of the project which includes a macadam road.

Three new storeys are to be built at an estimated cost of $1 million on top of the four-storey Hongkong and Shanghai Bank building in Singapore, increasing the height from 90 ft. to 135 ft.

SOUTHERN RHODESIA.—The Triangle Company has announced large industrial plans for Southern Rhodesia. These include the building of a £1,900,000 dam on the Mtilikwe River capable of holding 135,000 million gallons of water, the irrigation of 16,000 acres of sugar-cane land, the erection of a £2,800,000 sugar mill and the building of a 35-mile spur rail link with the Lourenco Marques line.

The Methodist Church in Southern Rhodesia is to modify its land policy for Africans with a view to providing townships near Salisbury for urban workers and to the establishment of the first full-scale agricultural college in the Colony for Africans. Details have been announced of a two-fold plan. The township development is planned for part of the 3,000-acre Epworth Farm, seven miles from Salisbury. The plan is to turn the northern half of the farm into a dormitory area for urban workers and use the rest of the area for farming. The agricultural college is to be built at Chivero, near Norton.

The Rhodesian Selection Trust Group of companies has announced that it has made a long-term private loan of £200,000 to the Southern Rhodesia Government to help with the Government's urban African housing scheme. . . . Fourteen new skyscrapers are now in the course of erection or on Salisbury drawing boards.

MARINE DRIVE, ACCRA

* The following is a summary of a notice from the "Gold Coast Gazette," No. 85, dated October, 1955:—

The Accra Municipal Council invites tenders from contractors registered in categories (a) and (b) Roads and Civil Engineering Works Class A (vide Gazette Notice No. 2029 of October 10, 1953) for the construction, completion by October 31, 1956, and subsequent maintenance of a Marine Drive from Accra to Christiansborg comprising: (a) aproximately 1½ miles of class 1 road; (b) parking areas, access roads and foot paths; (c) culverts and drainage works; (d) street lighting and water supply to buildings; (e) remodelling of sporting facilities; (f) minor buildings; (g) landscaping, horticultural and aboricultural planting.

Contractors will be expected to submit a tender for the whole of the works. Preference will be given, when selecting the successful tender, to a contractor with ability to complete the whole of the works by October 31, 1956, and to this end a bonus / penalty clause is inserted in the contract.

The form of tender, drawings, instructions to tenderers, agreement, specification, description of works, bills of quantities and bond may be obtained during normal working hours on payment of a deposit of £10 from the Engineer in Chief, Sir William Halcrow and Partners, MM.ICE, PO Box 2311, Accra.

Tenders enclosed and sealed in the envelope provided must be deposited in the Tender Box in the office of the Town Clerk, Accra Municipal Council, Accra, not later than 9.30 a.m. November 19, 1955. E. Lartey, Acting Town Engineer.

Please quote Ref. No. ESB/15511/55 in any correspondence with the Export Services Branch, BoT, about this circular, telephone Chancery 4411, Ext. 738 or 771.

* From the Board of Trade Special Register Information Service.

SNOWY MOUNTAINS SCHEME

* The following is the text of a notice issued by the Commissioner of the Snowy Mountains Hydro - Electric Authority, Australia, concerning large civil engineering construction works for which it is anticipated tenders will be called during the next two and a half years:—

Adminaby Dam: This will be an earth and rock fill dam approximately 380 ft. in total height and requiring the placement of some 9.5m. cu. yd. of fill. The diversion tunnel around the dam-site will have been completed prior to calling of tenders for the dam. Tenders will be called by the Public Works Department, New South Wales, acting on behalf of the Snowy Mountains Authority, in November or December, 1955.

The Tooma-Tumut Tunnel and Tooma Dam: The Tooma-Tumut Tunnel will be 47,000 ft. in length and of cross-sectional area equivalent to 14-ft. diameter. The tunnel will be unlined for probably 80 per cent. of its length, the remainder being concrete-lined and in some sections reinforced. The tunnel will be driven from the two ends and from a short horizontal adit at about the mid-point of the tunnel. Included in the contract will be the construction of four intermediate intake shafts varying in depth from 200 ft. to 400 ft. The work will also involve the construction of gate chambers at each end of the tunnel.

Tooma Dam will be an earth and rock fill structure approximately 192 ft. in height and involving the placement of 1.4m. cu. yd. of fill. A concrete-lined spillway channel will be included in the works. It is anticipated that tenders for the construction of the Tooma-Tumut Tunnel and Tooma Dam will be called in March or April, 1956.

The T2 Hydro-Electric Project: This project is a power development of 280,000 kW capacity. It will include an intake dam, headrace and tailrace tunnels and an underground power station. The intake dam will be a gravity concrete structure approximately 140 ft. in height, involving the placement of 50,000 cu. yd. of concrete. The dam will be provided with radial crest gates.

The headrace tunnel will be approximately 15,700 ft. in length and the tailrace tunnel approximately 19,000 ft. in length. Both tunnels will be concrete-lined throughout, to 21-ft. diameter. The underground power station will have an installed capacity of four 70,000 kW machines. The gallery will be approximately 60 ft. wide by 90 ft. high and 250 ft. long. Access will be gained by a sloping access tunnel. The works will also include the construction of two pressure shafts. Tenders will be called for the combined construction of the intake dam, tunnels and power station early in 1957.

Murrumbidgee—Eucumbene Diversion: The Murrumbidgee-Eucumbene Diversion will involve the construction of a diversion tunnel and an earth and rock fill dam. The diversion tunnel will be approximately 10 miles in length, nominally unlined, and of cross-section approximately 8 ft. wide by 9 ft. high. Construction will be from the two portals and possibly from a 450-ft. shaft at the mid-point of the tunnel. The dam will be approximately 200 ft. in height and will involve the placement of approximately 2,000,000 cu. yd. of fill. Tenders will be called for the construction of the dam and tunnel early in 1958. Note: The information given above is subject to variation in the event of alterations being made to the authority's plans and programme.

Further circulars will be issued by Export Services Branch, BoT, as and when additional information concerning the various requirements is received. Telephone inquiries to Chancery 4411, ext. 738 or 771, quoting ref.: ESB/24058/55.

CEMENT DELIVERIES

The Associated Portland Cement Manufacturers, Ltd., have announced that in spite of adverse weather early in the year, followed by the dock strike, deliveries of cement in the home and export markets to the end of October were slightly higher than for the same period of 1954, and profit margins to date a little lower. The overseas companies in which they are interested are understood to be doing well and further expansion is planned in New Zealand and British Columbia. In South Africa an additional kiln came into production in September.

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The SCOTTISH BUILDER

University Extension Appeal

AN appeal for £150,000 to provide an extension to the Glasgow University Student Union was inaugurated on October 31 by SIR HECTOR HETHERINGTON, principal of the university. Sir Hector said that the university Court were far indeed from doubting the need for, or the importance of, an enlargement of the union or, for that matter, an enlargement of the women's union. "They have very gladly undertaken to provide a site on which the extension will be built," he continued, "but the fact is that their own building programme, to which the court have been committed for a long time, contains items which they regard as being of even more importance than the enlargement of the union. In particular, they propose to build a new physical education centre."

Plewlands House Reopened

PLEWLANDS HOUSE, the 300-year-old house at South Queensferry which was threatened three years ago with demolition as "a slum," was reopened on October 28 by Lord Strathclyde, Minister of State, Scottish Office.

A year or two ago, LORD STRATHCLYDE said, the town council of South Queensferry found themselves with a slum on their hands. Now they had a graceful house which would shortly provide seven unusually pleasant homes.

The Minister thanked the town council for their co-operation and said the main credit must go to the National Trust for Scotland for taking over the building and making themselves responsible for its restoration and maintenance. He congratulated Mr. Basil Spence, OBE, ARA, on the fine job he had done.

NEW BUILDINGS

Aberdeen.—Plans have been approved in principle for administrative block at the Royal Mental Hospital, Cornhill-rd., these being by their own architects.

Airdrie.—Plans have been approved for 280 three- and four-apartment houses at the Dunrobin-rd. development. Council A, Harry Shaw (F), Master of Works Offices, Old Bank-bldgs., Graham-sq., Airdrie.

Angus.—Plans have been approved for additions to be erected for Messrs. Woolworth (est. cost £25,000), at 17 to 21, Castle-st., Forfar. Architect, H. Winbourne (F), New Bond-st., WC1.

Clackmannanshire.—Plans have been approved for new Catholic church (est. cost £45,000) at a site at Mar-st., Alloa.

Edinburgh.—City C has approved the erection at West Pilton of two 10-storeyed blocks containing 40 flats of two apartments and 80 of three-apartments, a total of 210 flats, at a cost of approximately £252,000.

Glasgow.—Plans have been approved for a new lighting department building (est. cost £23,000) at a site at Great Western-rd., Kelvinside. These being by the planning & architectural department, Municipal-bldgs., George-sq., Glasgow.

Glasgow.—Plans have been approved for two schemes for Morrisons Associated Co.'s., Ltd., 118/120, Howard-st., City, for additions, etc., at Renfield-st., and also at 118/120, Sauchiehall-st.. Architect, Baron Bercott (F), 118, Blythswood-st., Glasgow.

Glasgow.—Plans have been prepared for the Clydebank Co-operative Society, Ltd., 10, Nimmo-st., Clydebank, for ten houses and five shops at Great Western-st., Kelvinside. Architects, Stewart & Paterson (F), 110, Blythswood-st., Glasgow.

Glasgow.—Plans have been approved for alterations and additions for the Caledonia Pictures, Ltd., at Rathlin and Wardrop-sts. Architects, Charles Macnair, Elder & Ptnrs. (F&A), 529, Sauchiehall-st., Glasgow.

SCOTTISH BUILDING TRADE WAGES

FOLLOWING are rates of wages authorised by the Scottish National Joint Council as from April 18, 1955. They apply to the whole of Scotland, including the islands of Orkney, Shetland, etc.

Grade A: Craftsmen, 4s.; Labourers, 3s. 5½d.

For apprentices, the rates are:

Year.	Percentage of Craftsman's rate.	For week of 44 hours. s. d.
1st	25	44 0
2nd	33⅓	58 8
3rd	50	88 0
4th	66⅔	117 4
5th	75	132 0

For female labour, the rates are:

	s.	d.
Operatives on craft operations (at end of probationary period)	3	5½
Operatives on labouring operations (at end of probationary period)	3	2

Glasgow.—Plans have been approved for Archibald Thomson, Black & Co., Ltd., Shettleston, for extensions, etc., to their factory buildings at Annick-st. Engineers, Messrs. Crouch & Hogg, MInstCE, 15, Woodside-cres., Woodlands-rd., Glasgow.

Glasgow.—Plans are in hand for the Archdiocese of Glasgow, Park-circus, Kelvingrove, for Catholic church at Kinfauns-dr. Architects, Reginald Fairlie & Ptnrs. (F&A), 7, Ainslie-st., Westend, Edinburgh.

Glasgow.—Plans have been prepared by their own engineers for a new tower at Killermont for the South of Scotland Electricity Board, 351, Sauchiehall-st., Glasgow.

Glasgow.—Plans have been approved for Robert Maclaren & Co., Ltd., Kelvinhaugh, for buildings at Kilbirnie-st. Architect, Archibald D. Hislop (Campbell & Hislop) (F), United Kingdom Insurance Buildings, St. Vincent-st., Glasgow.

Greenock.—Plans have been approved by the Department of Health for Scotland for crematorium at Caddlehill. Architect, Lockhart Hutson (Cullen, Lochead & Brown), 119, Cadzow-st., Hamilton West.

Inverness.—Plans have been approved for additions (est. cost £15,000) at Academy-st. for the Scottish Wholesale Co-operative Society, Ltd. Architect, Kenneth Masson (F), 119, Paisley-rd., Glasgow.

Kilmarnock.—Plans have been approved for shopping centre at the Bellfield housing estate. Architect & QS: Neil S. Sutherland (F) and William H. MacColl, Master of Works Offices, Municipal-bldgs., Kilmarnock.

Lanarkshire.—Plans have been prepared for the United Glass Bottle Manufacturing Co., Ltd., Shottleston-rd., Glasgow, for extensions at their factory buildings at 515, Old Shottleston-rd., Parkhead. Architects, Hutton & Taylor (F), 19, India-st., Glasgow.

Lanarkshire.—Plans are in hand for education committee's scheme of conversion and additions to be carried out (est. cost £42,000) at the Carfin Hall, Motherwell-Wishaw, for a residential school. Architect, William R. Watt (F), County Offices, Albert-st., Motherwell-Wishaw.

Perthshire.—Plans have been approved for an extension to the junior secondary school at Killin (est. cost about £35,000). County A, Ian Moodie (A), Council Offices, York-pl., Perth.

Peterhead.—A £357,100 factory, which will cover about 50,000 sq. ft. is to be built at Station-rd. for the Cleveland Twist Drill Co. of America. It is expected that the factory will be in production in about a year.

Stirling.—Plans have been approved for new development of the Borostone housing site at St. Ninians. Architect, J. Austen Bent (A), 15, Palmerston-pl., Westend, Edinburgh.

The Builder FUTURE CONSTRUCTION

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

NOVEMBER 16.

*†**Glos CC.**—New primary school, Cashes Green, Stroud. County A, Gloucester. Dep. £2 2s.

NOVEMBER 17.

*†**Surrey CC.**—Extension to County Hall, Kingston-upon-Thames. County A.

*†**Wilts CC.**—Pair of police houses, Rutland-cres., Trowbridge. P. A. Selborne Stringer, C, Trowbridge. Dep. £2 2s. Tenders by December 15.

DOHM

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NOVEMBER 19.

*†**Essex CC.**—Branch library, Hilldene-ave., Harold Hill, Romford. County A, Chelmsford.

*†**South Western Regional Hospital Board.**—Operating theatre and X-ray unit at St. Martin's Hospital, Bath. W. A. Williams, chartered architect, 5, Wood-st., Bath. Dep. £2 2s.

NOVEMBER 21.

*†**Chester RDC.**—34 houses and flats at Upton-by-Chester. T. C. R. Eaton (A), 16, White Friars, Chester. Dep. £3 3s.

*†**Northampton and County Trustee Savings Bank.**—Erection of new premises at 23, Silver-st., Wellingborough. Sir John Brown & A. E. Henson & Ptnrs., 30, Billing-rd., Northampton.

*†**Southampton CB.**—Redecorations and repairs, Mount Pleasant sec. and infts.' sch. Boro' A. Tenders by December 20.

NOVEMBER 22.

*†**Beds EC.**—Classroom, Stanbridge prim. sch. County A, Bedford.

*†**Wimbledon BC.**—Six flats at 56/66, Plough-la. BE&S, Town Hall. Dep. £2 2s.

NOVEMBER 25.

*†**Bedford BC.**—36 flats Monk's Hill Putnoe estate. BE&S. Dep. £3 3s.

***Leatherhead UDC.**—New roof and rainwater disposal, The Stable Block, Bookham-gr. E&S, Red House.

*†**Northants CB.**—New secondary modern school for 450 girls. Chief Ed. Officer, Springfield, Cliftonville.

***Walthamstow BC.**—Demolition of various properties. Boro' A., E&S.

NOVEMBER 26.

***Gravesend BC.**—68 houses at Valley-dr. Scheme 11A. BE&S, 6, Woodville-terr. Dep. £2 2s.

*†**West Sussex CC.**—Primary school, Tilgate, Crawley. County A, Chichester.

NOVEMBER 28.

***Crawley Development Corporation.**—721 dwellings; 98 flats and 91 garages. Chief A, Broadfield, Crawley.

***Exmouth UDC.**—Public conveniences at "Templeton Lodge." E. E. Ellis & Son, 2, Station Parade-chbrs. Dep. £2 2s.

NOVEMBER 29.

***Guildford BC.**—6 bungalows, Laburnum-cl., Bellfields. BE& S. Dep. £2 2s.

NOVEMBER 30.

†**Harrow BC.**—Inclusion in selected lists for houses, flats and ancillary works (A) over £100,000, (B) £30,000-£100,000, (C) £1,000-£30,000. TC.

*†**Tottenham BC.**—64 dwellings at The Hale. Phase 1, Contract A. BE, Town Hall. Dep. £2 2s.

***Walthamstow BC.**—Motor car showroom, Hoe-st. Boro' A, E&S. Dep. £2 2s.

DECEMBER 2.

***Southport CB.**—Repairs and improvements at No. 1, Albert-pl., Promenade. Boro' A and Town Planning Officers' Dept., 99/105, Lord-st. Dep. £1 1s.

DECEMBER 3.

St. Austell UDC.—20 traditional dwellings at Eastbourne housing site, St. Austell, and 20 traditional dwellings at School hall housing site, Mevagissey. H. G. King, E&S. Dep. £2 2s.

DECEMBER 5.

***Guildford RDC.**—20 dwellings at The Rough, West Horsley. Contract No. 1. E&S, Millmead House. Dep. £2 2s.

***Wallasey CB.**—12 flats, Eric-rd./Mill-la. Boro' A. Dep. £1 1s.

DECEMBER 6.

***Bletchley UDC.**—134 houses at Rivers estate. E&S, Council Offices. Dep. £5.

DECEMBER 7.

***Stourbridge BC.**—71 houses, Wollaston Farm estate. BE&S. Dep. £3 3s.

DECEMBER 10.

***Blyth BC.**—24 houses, Newsham-rd. BE&S. Dep. £2 2s.

DECEMBER 12.

***Deal BC.**—Erection of Pier Head buildings. BE&S. Dep. £2 2s.

DECEMBER 19.

***Erith BC.**—72 flats, Hurst-pl., Abbey Wood, SE2, BE&S. Dep. £2 2s.

***Finchley BC.**—Demolition of old municipal buildings, Hendon-la., N3. BE&S, 294-296, Regents Park-rd., N3. Dep. £2.

***Lincoln (Kesteven) CC.**—First instalment Bourne County Secondary Modern School. County A, Sleaford.

NO DATE.

***Lindsey CC.**—Erection of an instalment of Sec. Mod. Sch. at Gainsborough (approx. value £150,000). Myles-White, Vallance & Westwick, Paradise House, Paradise-st., Sheffield 1.

***South Manchester Hospital Management Committee.**—Applications invited from firms to be placed on approved list for carrying out maintenance and decorative works at hospitals and clinics. Group Supplies Officer, Withington Hospital, Manchester 20.

PAINTING, MATERIALS, ETC.

NOVEMBER 18.

***Altrincham BC.**—Domestic wooden windows for 21 houses, Oldfields Brow estate. BS.

***†Bristol EC.**—Heating, hot water supply, cold water supply, gas and fire mains for College of Technology, Ashley Down, Davy House (Block 4). Chief Ed. Officer, Council House. Dep. £2 2s.

NOVEMBER 29.

***Wigan CB.**—Building materials for housing schemes. Boro' & Water E.

DECEMBER 2.

***Southport CB.**—Timber windows; fireplace grates and surrounds; and electric lighting and heating for 97 houses at Burnley-rd. estate. Boro' A & Town Planning Officer's Dept., 99/105, Lord-st. Dep. £1 1s.

MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

NOVEMBER 28.

Caithness CC.—Laying of 2½ miles 12in., 2 miles 8in., 2½ miles 6in. and ½ mile 4in. dia. spun-iron pipes; 1 mile 5in. 4½ miles 4in., and 4½ miles 3in. dia. asbestos-cement pipes, with ancillary works, and supply and laying of 9½ miles 2in. dia. asbestos-cement pipes, with necessary CI specials and fittings at Latheron parish. Binnie, Deacon & Gourley, Engs., Artillery House, Westminster, SW1. Dep. £5.

Caithness CC.—5½ miles of 1½in. dia. and 2 miles of 2in. dia. asbestos-cement pressure pipes, cast-iron specials, etc., at Watton, Bower, Olrig and Halkirk parishes. Binnie, Deacon & Gourley, Engs., Artillery House, Westminster, SW1. Dep. £5.

DECEMBER 5.

Bishops Stortford UDC.—Making-up with strengthened foundations and asphalt surfacing, together with incidental works of following roads: (1) Thorley Hill, 380 yds., (2) Park-la., 183 yds., and (3) Thorley Park-rd. 220 yds. E&S. Dep. £1 1s. each contract.

Stafford RDC.—10,133 yds. 6-12in. dia. concrete tube and glazed stoneware pipe sewers, with manholes, 3,255 yds. 8in. and 4in. dia. spun-iron rising mains and two automatic pumping stations. Elliott & Brown, Cons. Engs., Stanley House, Pelham-rd., Nottingham. CofC. Dep. £5 5s.

Truro RDC.—2,100 lin. yds. 9in. and 6in. SGW sewer pipe and 3in. spun-iron pipe, manholes, pumping station sewage treatment works and ancillary works at Tresillian. Osmand & Lane, Council's Cons. Engs., Trevemper Lodge, Trevemper Bridge, Newquay. Dep. £2 2s

DECEMBER 6.

Accrington District Water Board.—Reconditioning of Dean reservoirs. G. H. Hill & Sons (Manchester), Civil Engs., 51, Mosley-st., Manchester, 2. Drawings also at Board's Offices, St. James's-st., Accrington. Dep. £5 5s.

DECEMBER 7.

Barnack RDC.—2,500 yds. 6-in. dia. salt-glazed sewers, 34 precast concrete and brick manholes, 2 ejector stations, 850 yds. rising main and contingent works at Wothorpe and St. Martin's Without parishes. Stirling, Maynard & Ptnrs., Cons. Engrs., 8, Stationchbrs., Peterborough. Dep. £2 2s.

DECEMBER 17.

Dunmow RDC.—9,300 lin. yds. 6/9-in. dia. glazed stoneware sewers, 450 lin. yds. 5-in. dia. spun-iron rising mains, brick and concrete manholes, three pumping stations and two sewage disposal works at Takeley and Little Hallingbury. J. D. & D. M. Watson, MMICE, Council's Cons. Engrs., 18, Queen Ann's-gate, SW1. Dep. £10 10s.

DECEMBER 31.

Axminster RDC.—Construction, completion and maintenance of 9-in. and 6-in. s.g.w. pipe sewers, concrete manholes, sewage pumping station, two sewage disposal works, c.i. rising main and ancillary works at Shute (Whitford), Musbury and Kilmington parishes. Silcock & Simpson, Cons. Engrs., 10, Park-row, Leeds, 1, C. of C. Dep. £5.

GENERAL BUILDING WORK

(LONDON)

Kensington.—FLATS.—Revised plans submitted by John Grey & Ptnr., architects, 17, Buckingham-st., WC2, for the redevelopment of 61, St. Ervan's-rd. by the erection of eight flats, at an estimated cost of £11,434, have been recommended for RBC's approval by Hsg. Com.

Kensington.—FLATS.—Hsg. Com. recommend that plans prepared by BE for the erection of 22 flats for old people in one three-storey block on the Clarendon-rd. frontage and one four-storey block on the Lansdowne-rise frontage be approved. The estimated cost of the scheme is £38,519.

St. Pancras.—FLATS.—Proposals by T. Sibthorp, FRIBA, 10, Manchester-sq., W1, for the redevelopment of the temporary house site at the junction of York-way, Agar-gr. and Marquis-rd. have been approved by TP Com. They provide for the erection of a four-storey "L"-shaped block of 24 flats.

St. Pancras.—SURVEY.—TP Com. as a matter of urgency, have authorised the carrying out of a survey of the Dartmouth Park-ave. housing site. The architect for the scheme is D. Clarke Hall, FRIBA, 6, Mason's-yd., Duke-st., St. James's, SW1.

St. Pancras.—FLATS AND HOUSES.—Approval has been given by TP Com. to the proposed elevational treatment prepared by J. M. Austin-Smith, MC, ARIBA, 10, Priory-walk, SW10, for the blocks of flats and houses comprising the Camden-sq. housing scheme.

St. Pancras.—LAYOUT APPROVAL.—LCC has given conditional planning consent to the layout scheme prepared by Davies & Arnold, architects, 27, Grosvenor-pl., SW1, for the development of Regent's Park areas "E," "F" and "G." Detailed drawings are being prepared for submission to MBC.

St. Pancras.—REDEVELOPMENT.—Revised layout plans by Frederick Gibberd, FRIBA, MTPI, 98, Percy-st., W1, for the provision of 176 dwelling units at Regent's Park area "A" in one nine-storey block, three four-storey blocks and one seven-storey block, with a PH, have been approved by TP Com.

(PROVINCIAL)

Barnsley.—EC proposes erection of new junior school in 1956 programme, £42,000 est.—Received approval for inclusion of second instalment of extensions to Mining and Technical College in 1956 programme, £170,000 est, and first instalment of new Sec. Tech. Sch., £106,822 est.

Barrow-in-Furness.—TP approval to David Caird, Ltd., for proposed foundry at Hindpool-rd.—Watch Com. propose 3 pairs s.d. police houses at Mill-la., Walney.

L.M.B.A.
HANDBOOK
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LONDON MASTER BUILDERS' ASSOCIATION
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Bath.—New factory at Odd Down is proposed by C. & J. Clark, Ltd., shoe mnfrs., for manufacture of shoe-making machinery.

Belfast.—Site preparations commenced for new premises of John Arnott & Co. (Belfast), Ltd., at Bridge-st./High-st. bombed site.

Birmingham.—Francis Nicholls, Ltd., propose erection of new building for garaging and servicing of vehicles. A: Bertram Butler & Co. (F), 6, Tettenhall-rd., Wolverhampton.

Blackburn.—Development plan to provide 100 more beds at Blackburn Royal Infirmary approved by Regional Hospital Board for 1958-9, £250,000 est.

Bootle.—EC to include following in 1956-7 programme: Jun. dept. at Park-la. estate CP sch.; new jun. dept at St. John's C of E Prim. Sch.; and extensions at Holy Ghost RC Sec. Mod. Sch.

Brighouse.—By-law and TP approval to W. Halliwell, Ltd., for 26 houses and new street, Bracken-rd., and to Iredale Bros. for 48 houses and new street, Garlick-st.

Bristol.—Trustees of Ald. Stevens's Charity to invite tenders for rebuilding almshouses in Old Market-st., damaged by air raids.

Bristol.—Tenders to be invited from selected firms for school building, Withywood sec. (900 places), Henbury sec. (1,200 additional places) and Elmlea prim. (280 places). Total est. £778,000.

Bristol.—St. Anne's Board Mill Co., Ltd., plan expansion of their factory at St. Anne's to accommodate 250 more employees and Planning Com. recommend sale of certain corporation lands to the company for this purpose.

Bristol.—Welfare Services Com. seek MoH approval for preliminary plans for 60-bed old people's home at Bath Hill/Glenarm-rd., Brislington.

Burbage (Leics).—MH&LG has granted planning permission to George Cooper & Sons (Nuneaton), Ltd., for erection of 19 bungalows and 12 pairs s.-d. houses at Three Pots, Sketchley, Burbage, for extension of Welbeck-ave., and for erection of 6 s.-d. houses and 6 bungalows thereat.

Consett.—R. B. Bolton & Co., manufacturers of mining equipment, Consett, are to commence work on construction of new factory of 4,500 sq. ft.

Consett.—The British Oxygen Co., Ltd., Bridgewater House, Cleveland-row, SW1, have received sanction to build gas washing plant at Consett.

Crayford.—UDC plan to build 70 dwellings at Normandy Farm.

Ellesmere, Salop.—UDC approved new factory at Grange-rd. for R. J. Fullwood & Bland, Ltd.

Galway, Ireland.—Blue Printers, Ltd., Wigan, propose transfer of cotton weaving and screen printing plant from Sweden, £75,000 est.

Gateshead.—TC received loan sanction for £32,400 for erection of 24 houses at Glasshouse-yard; £65,017 for 48 houses on Leam-la. estate; £18,900 for 14 houses at Asylum-sq.; £9,812 for six police houses at Ventnor-gdns.; £344,412 for 180 multi-storey flats in Charles-st. and Ann-st.; and £256,305 for 135 multi-storey flats at East-st.—TC has applied for loan sanction for £24,671 for 17 houses at Wrekenton neighbourhood unit and is considering erection of second storey to block "Ashwood" at Fountain View Institution. It is expected that a private architect will be appointed.

Hartlepool.—BE (J. H. Wood) prepared layout plans for 97 houses in Blandford-st. area.

Hyde.—TC approved plans for site of College of Further Education at Hilda-rd. for Cheshire CC.—Seek loan of £25,772 for 13 houses and 2 shops at Harbour Farm estate, £36,634 for houses on Donald-ave. site, £36,634 for 20 houses and 2 shops on Cheetham Fold estate, £58,011 for 37 houses on Grange-rd. estate, and £23,587 for 15 houses and 1 bungalow at Ashton-rd.

Kent.—New farm institute for horticultural education to be built at est. cost £175,000.

Leeds.—Two further areas between Kirstall-rd. and Burley-rd. in addition to that already being developed have been allocated for industrial use and Corporation is promoting parliamentary bill to permit erection of flatted factories on site adjoining recreaton ground.

Luton.—Outline plans approved for single-storey factory building 19,000 sq. ft. in area and for further development of factory estate at Chaul End-la.

Manchester.—TC proposes erection of branch library at Portway and Stoneacre-rd.—EC appointed Harry S. Fairhurst & Son (F), 55, Brown-st., Manchester, as architects for erection of new chemical engineering buildings at College of Technology.

Manchester.—Regional Hospital Board approved: Orthopædic clinic and rehabilitation and physiotherapy department at Royal Albert Edward Infirmary, Wigan, £43,358 est.—Managers of Royle Green C of E sch. propose new C of E prim. sch. at Northenden. A: Leach, Rhodes & Walker (A), 90, Deansgate, Manchester.—T. Shackleton & Co. propose single-storey extension to factory at 40, Dalton-st., Manchester, 4. A: Stanley Birkett (A), 103, Portland-st., Manchester, 1.—Committee of Management of St. Ninians Church, Wilbraham-rd. and Egerton-rd. South, Chorlton-cum-Hardy, propose erection of church hall, committee room and kitchen. A: Thomas Reive (A), 7, Parsonage-rd., Heaton Moor.

Mansfield Woodhouse.—UDC to purchase 56 acres at Clipstone Camp site to build houses for miners and others in association with Coal Industry Housing Assn., who already propose to erect 150 houses on site.

Melford (Suffolk).—Plans Com. of RDC recommend approval of scheme of development comprising 63 houses, 2 shops and 26 garages at Great Cornard, Sudbury, proposed by Slaney Estates, Ltd., Dublin, who hope to begin work on roads and services next year. Surveyors and agents, Percival & Co., Sudbury.

Middlesbrough.—Following a public inquiry, MH&LG has approved erection of garages and showrooms in Bridge-st. for Nesham's Garages, Ltd., 117, Grange-rd., Middlesbrough. A: Garbutt, Archibald & Archibald (L), 23, Albert-rd., Middlesbrough. Ministry also sanctioned erection of new premises at junction Bridge-st. East/Lower Gosford-st. for Tees Towing Co., Cleveland-bldgs., Queens-sq., Middlesbrough.—British Home Stores, Ltd., Marylebone-hse., Marylebone-rd., NW1, are planning erection of stores at site of Wesley Mission Church, which is being demolished. Firm's staff A: G. W. Clarke (L).

Morecambe and Heysham.—BC approved layout for further 108 houses at Branksome-dr. estate, 21 houses and 12 flats at Railway-ave. and Watson-ave., and 6 bungalows at Langdale-rd.

Morpeth.—Newcastle Hospital Board to convert "Fulbeck Grange" into accommodation for nursing and domestic staff at Northgate Hospital, Morpeth. A: J. W. Hanson & Son (L), 123, Northumberland-st., Newcastle.

Newcastle-on-Tyne.—City C received loan sanction for £68,030 for 28 flats and maisonettes and 16 houses at Slatyford-la., and £42,759 for 24 flats and maisonettes and seven garages at Byker Bank.

Newcastle-on-Tyne.—City C to seek compulsory purchase order to acquire land from Cussins (Contractors), Ltd., on Montagu Estate, for erection of primary school.

Northampton.—RDC to build 30 houses at Little Billing.

Northumberland.—CC proposes additions to Thomas Taylor Homes at Stannington, at cost of £73,000. No contracts let. County A.

Nottingham.—Scheme for new branch library to incorporate three lock-up shops at junction Mansfield-rd./Spondon-st., Sherwood, approved by MH&LG. £26,436 est.

Plymouth.—HC recommend 72 dwellings for Admiralty and 30 for Corporation on east side of proposed dockyard perimeter road at Granby barracks.

Rawdon.—West Riding CC seek loan £325,000 for new sec. sch. at Benton-pk.

Salford.—TC appointed Cruickshank & Seward (F), 196, Deansgate, Manchester, as architects for development of Lower Kersal site.

Sedgley.—UDC approved revised layout for crematorium at Gornal Wood Cemetery, £50,000 est., and are to invite tenders for 46 houses at Cinder-rd.

Sherborne.—MH&LG have granted permission for tenders to be accepted for 24 flats and for sale of sites for 1 shop and 1 hall at McCreery-rd. housing site.

Shipley.—UDC to erect 100 dwellings in 1956, 50 of which will be by direct labour.

Sodbury.—RDC granted to Stroud Brewery Co., Ltd., lease of site for new PH at Yate Aerodrome (Bristol Corpn. overspill housing estate).

Stafford.—RDC planning erection of further 438 dwellings.

Stockport.—BC inviting tenders for further 255 houses on south section of Brinnington estate.—Approved plans: Alterations at St. Mark's Church, Berlin-rd., for the Trustees; social club at Bramhall Moor-la. for Mirrlees, Bickerton & Day, Ltd.; new shop premises at Mersey-way and Union-rd. for F. W. Woolworth & Co., Ltd.

Stockton-on-Tees.—TC to let contract for erection of 191 houses at Fairfield West. Boro' A.

Sunderland.—TC received authority to close two streets to make way for erection of factory for light industries.—TC preparing plans for reconstruction of town centre to include building of several shops.

Sunderland.—MH&LG consent to borrowing of £196,450 for roads and sewers at Hylton Red House site, £130,380 for erection of 107 houses on Farringdon estate, £59,345 for Health Centre at Springwell-rd., and £568,819 for erection of 175 houses at Farringdon estate, 142 at Nookside, Grindon estate, and 139 at High Southwick estate.

Swindon.—Wilts CC to negotiate tenders for four schools of "Thermagard" construction. Swindon EC to place contracts for two schools (infants' and jun.) at Walcot East shortly.

Tyldesley.—UDC proposes expenditure of £20,000 for renovating public baths.

Tynemouth.—Plans approved for four- and five-storey blocks of flats for 54 families at North Shields. A: Tasker & Child (F), 25, New Bridge-st., Newcastle-on-Tyne.—G. Davidson & Sons, motor engineers, etc., Coach-la., North Shields, to make alterations to their garage and workshop, including new elevation. A: L. G. Wood (A), 17, Northumberland-sq., North Shields.—Plans for showrooms and offices in Bedford-st., North Shields, for E. Turnbull & Son, approved. A: F. R. N. Haswell & Son (L), 77, Tyne-st., North Shields.—Plans for six semi-detached houses at Tynemouth and development of the Broadway, by M. J. Liddle & Son, bldrs., Great North-rd., Newcastle, have been approved.

Tynemouth.—TP Com. allocated portion of Old quarry at junction Lynn-rd./Billy Mill-la. as site for proposed new Lynn-rd. ctv. prim. sch.

Uttoxeter.—RDC to prepare detailed plans for new council chamber at rear of Holly Dene offices.

Wallsend.—Plans prepared by L. G. Mouchel & Partners, consulting engineers, 9, Ellison-pl., Newcastle-on-Tyne, for proposed offices in Potter-st., for Clelands (Successors), Ltd. — British Railways (North-Eastern Region, York) to reconstruct bridges at Coach-rd., Third-st. and Carville-rd. — TC to borrow £95,273 for erection of 74 houses on Low Willington Farm estate. Boro' E.

Wardle.—UDC proposes 26 houses on Ashbrook estate.

Welshpool.—D. Mervyn Edwards & Moreton (L/A), 5, Lr. Brook-st., Oswestry, are architects for redesign of Welshpool Smithfield cattle market.

West Lancs.—RDC proposes erection of following houses during 1956: 200 at Aintree, 310 at Maghull, 180 at Lydiate.

West Riding.—CC proposes adaptation of Burley Hall, Wharfedale, to form a home for the aged; approved alterations and improvements at Woolley Hall Teachers' Training College, £18,000 est.; and erection of new fire station at Boroughbridge.

Widnes.—The Peak Construction Co., Ltd., Birkenhead, propose erection of 100 houses at Crow Wood.

Widnes.—TC approved scheme for new public baths at Kingsway. £200,000 est.

Widnes.—Planning permission sought by A. Boake, Roberts & Co., Ltd., chemical manufacturers, for factory on 50-acre site at Castle View Farm, Dans-rd.

Wigan.—TC seeks loan £95,867 for erection of 66 houses at Worsley Mesnes.

Wilmslow.—Finnigans, Ltd., Deansgate, Manchester, propose erection of large new modern shop premises.

Wrexham.—RDC received MH&LG permission to invite tenders for further 50 houses this year.

York.—Bldg. and Planning Sub-Com. recommend programme for 1956 comprising 40 flats at Navigation-rd., eight dwellings at Dale-st., 50 at Acomb-rd. (at rear of old people's home), 37 at Groves area, nine at junction Thanet-rd.-Kingsway West, eight at Cornlands-rd., 100 at miscellaneous sites, and 76 at Chapel Fields estate. City A.

TENDERS

* Denotes *accepted.*
† Denotes *provisionally accepted.*
‡ Denotes *recommended for acceptance.*
§ Denotes *accepted subject to modification.*
¶ Denotes *accepted by H.M. Government Departments.*

Ayrshire.—14th development of Kilmarnock Bellfield estate housing scheme consisting of 100 houses. A: Neil S. Sutherland (F). QS: W. H. MacColl, AMICA, Master of Works Offices, Municipal-bldgs., Kilmarnock: *Weirs Housing Corp., Ltd., Calder-st., Whifflet, Coatbridge, £121,315.

Brackley.—Following for RDC.—Eight houses at Croughton. *Brackley Builders, Ltd., Manor-rd., Brackley. £14,308.—16 houses at Farthinghoe, *F. A. Hedges, Syresham, Brackley. £26,823.—18 houses at Middleton Cheney. *Hinkins & Frewin Lewin, Ltd., Canal-st., Oxford. £28,892.

Bradford.—293 houses at Tong Estate for TC. *John Laing & Son, Ltd., Dalston-rd., Carlisle. £474,740.

Coventry.—New block at Coventry and Warwickshire hospital for Regional Hospital Board: *A. Matts & Son, Ltd., Vecquerav-st., Coventry, £184,000 approx.

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Coventry.—Alderman Green infants' sch. for EC. *G. W. Deeley, Ltd., 27, Avon-st., Upper Stoke, Coventry. £41,151.—Additional lairage accommodation at public abattoir for TC. *F. Hocking & Sons, Ltd., 384, Stoney Stanton-rd., Coventry. £42,511.

Derby.—Breadsall Hill Top sec. sch. for EC. *Direct Labour.

Durham.—Fire brigade headquarters at Durham for CC. County A: G. R. Clayton (F), Court-la., Durham: *Bell and Ridley, North-rd., Durham, £30,754.

Gateshead.—Millwrights' and electricians' shops at Victoria Works of Clarke, Chapman & Co., Ltd.: *Brims & Co., Ltd., City-rd., Newcastle-on-Tyne.

Glasgow.—Extensions and additions, etc., at Dennistoun, for R. & J. Garroway & Co., Ltd., manfrs. Plans by A: *Donald Clark & Son, Ltd., Caledonian Steelworks, Rutherglen.

Glasgow.—New houses and shops at Unit No. 3 at Castlemilk Development. A: Archibald G. Jury (F), Housing Offices, Glasgow Cross, The Tronsate, EC1: *Robert W. Stewart & Co., Ltd., St. Enochs-sq., Glasgow, C1.

Glasgow.—20 houses at Gower-st. and Gower-ter. Govan. A: Norman R. Macfadzean (F), 137, West Regent-st., Glasgow. WC2: *John Lawrence & Co. (Bldrs.), Ltd., West Regent-st., Glasgow.

Guildford.—16 pairs houses at Park Barn for BC. BE&S: G. H. Causey, BSc., AMICE. QS: F. W. Norris, ARICS: E. Clarke & Sons (Addlestone), Ltd., Addlestone, Surrey, £40,186.

Hay-on-Wye.—New fire station at Brecon-rd. for Breconshire and Radnorshire Joint Fire Brigade Com. A: Scott & Redwood. QS: R. E. Moughton & Ptnrs., Llandrindod Wells: *J. A. Ward & Son, Hay-on-Wye, £9,620.

Ince-in-Makerfield.—16 bungalows and 2 houses off Warrington-rd. and 2 blocks of flats at Cemetery-rd. site for UDC. *J. Gaffney & Son, Whelley, Wigan.

Keighley.—Private day nursery for 50 children at Carr-la., Riddlesden, for Mr. & Mrs. H. Metcalfe, 43, Scott-la. West, Riddlesden. *Nowell & Robinson, Keighley.

Lambeth.—10-storey office block at 9, Albert Embankment for Decca Record Co., Ltd. A: Grace and Farmer (F), 1, Chichester-court, 5, Crawford-st., W1. QS: Stanley Griffith & Ptnrs., Portcullis-bldg., Greycoat-st., SW1: *Myton, Ltd., Hull, £400,000.

Lanarkshire.—Extension to St. Monica's Catholic school, Coatbridge, £94,000 est. Council A: James Monteith (F), Master of Works Offices, Municipal-bldgs., Coatbridge. (Subject to approval of Scottish Education Department.) *George Wimpey & Co., Ltd., 59, St. Vincent-st., Glasgow, WC2.

Lanarkshire.—Brickwork for 96 houses at Thorn site, Bellhill, for CC: *Loudon & Inglis, Coatbridge, £59,636.

LCC.—Construction on Chillingworth-rd. site, Islington, of 70 flats in two five-storey blocks and two three-storey blocks, and 32 maisonettes in three four-storey blocks. Each of the five-storey blocks will contain ten tenants' stores and 33 tenants' store sheds and a toddlers' play space. The rates and prices in the bills of quantities for five of the blocks (contract) will be used to value the cost of the other two blocks (contract B). Tender prices on basis I are subject to fluctuations, both in rates of wages and in cost of materials, and tender prices on basis II are subject to fluctuations in respect of rates of wages only.

	Basis I	Basis II
M. J. Gleeson (Contractors), Ltd., North Cheam	£179,729	—
J. M. Hill & Sons, Ltd., Wembley	177,401	—
A. T. Rowley (London), Ltd., Tottenham	175,870	—
Rowley Bros., Ltd., Tottenham	175,088	—
Stewart & Partners, Ltd., St. Marylebone	174,500	—
Marples, Ridgway & Partners, Ltd., Westminster	172,149	—
Gee, Walker & Slater, Ltd., Westminster	171,939	—
Rush & Tompkins, Ltd., Sidcup	169,387	£174,387
W. J. Simms, Sons & Cooke, Ltd., Westminster	169,351	—
C. Miskin & Sons, Ltd., St. Albans	167,109	—
*Tersons, Ltd., Finchley	165,970	—

Architect's comparable estimate on basis I is £161,924.

Construction at Clapham Park estate (Clarence-ave. site), Wandsworth, of 30 flats in one five-storey block, 42 maisonettes in two four-storey blocks and 22 houses in four two-storey blocks, together with 14 tenants' stores and ten garages. Tender prices on basis I are subject to fluctuations, both in rates of wages and in cost of materials, and tender prices on basis A are subject to fluctuations in respect of rates of wages only.

	Basis A	Basis B
Rowley Bros., Ltd., Tottenham	£243,832	—
A. T. Rowley (London), Ltd., Tottenham	242,147	—
Bunting Construction Co., Ltd., Lambeth	238,095	—
Gee, Walker & Slater, Ltd., Westminster	237,490	—
Thomas & Edge, Ltd., Woolwich	234,036	—
Leslie & Co., Ltd., Kensington	233,699	£238,999
Rush & Tompkins, Ltd., Sidcup	231,545	236,545
The Unit Construction Co., Ltd., Feltham	230,724	—
M. J. Gleeson (Contractors), Ltd., North Cheam	230,152	—

Wilson Lovatt & Sons, Ltd., Westminster	229,007	—
*J. M. Hill & Sons, Ltd., Wembley	225,599	—

Architect's comparable estimates are £222,714 on basis A and £225,489 on basis B.

Construction on Cobbett-st. site of 47 maisonettes in two four-storey blocks (one of which will be partly of three storeys) and 12 flats in a three-storey block, together with five shops, two children's playgrounds and 25 tenants' stores. The rates and prices in the bills of quantities for this work (contract A) will be used to value the cost of construction of 42 maisonettes in two four-storey blocks, together with a third children's playground, three garages and 27 tenants' stores (contract C). These rates and prices will also be used, together with a separate schedule of prices that the firms were invited to submit in respect of work in contract B for which there is no comparable work in contract A, to value the cost of the construction on the Eugenia-rd. and Corbett's-la. sites, Bermondsey and Deptford, of 140 maisonettes in eight four-storey blocks, 45 maisonettes and six flats in a six-storey block, 16 houses in two terraces and four one-room flats above four shops in a two-storey block, together with 95 tenants' stores and 12 garages.

	Contract A	Schedule of prices for contract B
M. J. Gleeson (Contractors), Ltd., North Cheam	£170,951	£69,027
Prestige & Co., Ltd., Westminster	166,191	64,876
A. T. Rowley (London), Ltd., Tottenham	162,498	60,524
Wilson Lovatt & Sons, Ltd., Westminster	160,900	62,500
Thomas & Edge, Ltd., Woolwich	160,560	59,610
Rowley Bros., Ltd., Tottenham	157,790	65,082
Rush & Tompkins, Ltd., Sidcup	156,457	57,861
W. J. Simms, Sons, & Cooke, Ltd., Westminster	153,942	63,495
*Kirk & Kirk, Ltd., Wandsworth	153,604	62,872

Architect's comparable estimates are £147,930 for contract A and £59,508 for the schedule for contract B. On the basis of prices in lowest tender the estimated cost of work in contract C is £118,800 and that in contract B is £583,300.

Construction on Dickens estate extension (Jamaica-rd. site extension), Bermondsey, of 24 flats and ten shops in a four-storey block, together with ten tenants' stores. A lift will be installed. Tender prices on basis A are subject to fluctuations, both in rates of wages and in the cost of materials, and tender prices on basis B are subject to fluctuations in respect of rates of wages only.

	Basis A	Basis B
Kirk & Kirk, Ltd., Wandsworth	£82,403	—
Prestige & Co., Ltd., Westminster	80,796	—
F. R. Hipperson & Son, Ltd., Dagenham	80,123	—
E. H. Smith (Croydon), Ltd., Croydon	77,424	—
Y. J. Lovell & Son, Ltd., Paddington	76,632	—
Stewart & Partners, Ltd., St. Marylebone	76,613	—
A. T. Rowley (London), Ltd., Tottenham	75,976	—
Spiers, Ltd., Westminster	75,257	£77,877
*Thomas & Edge, Ltd., Woolwich	73,367	—

Appointed architect's comparable estimate on basis A is £74,500.

Construction of 18 flats in a three-storey block and 12 maisonettes in a four-storey block, together with 14 tenants' stores and a children's playground at Galloway estate, Poplar (contract A), and 21 flats in three blocks partly one storey and partly three stories in height, 14 maisonettes in a four-storey block and 17 tenants' stores at Dingle-la. site, Poplar, together with 12 tenants' stores at adjoining Will Crooks estate (contract B). The rates and prices in the bills of quantities for the work in contract B will be used to value the construction on the Dingle-la. site of 12 flats in a three-storey block and 30 maisonettes in two four-storey blocks, together with a children's playground and 19 tenants' stores (contract C).

	Contract A	Contract B
F. R. Hipperson & Sons, Ltd., Dagenham	£80,017	£98,211
Stewart & Partners, Ltd., St. Marylebone	78,705	93,176
Gee, Walker & Slater, Ltd., Westminster	76,918	93,627
Tersons, Ltd., Finchley	73,704	90,659
W. J. Jerram, Ltd., East Ham	72,820	92,269
Thomas & Edge, Ltd., Woolwich	72,315	91,574
A. T. Rowley (London), Ltd., Tottenham	71,683	90,476
*Rowley Bros., Ltd., Tottenham	68,422	88,180

Architect's comparable estimates are £69,864 for contract A and £86,927 for contract B.

Construction of a six-storey block of 24 flats, together with 12 tenants' stores and other work, at Lilestone estate (Ashbridge-st. site), St. Marylebone. Tender prices on basis A are subject to fluctuations both in rates of wages and cost of materials, and tender prices on basis B are subject to fluctuations in respect of rates of wages only:—

	Basis A	Basis B
W. J. Jerram, Ltd., East Ham	£64,900	£65,124
Patman & Fotheringham, Ltd., Islington	64,825	—
M. Howard (Mitcham), Ltd., Mitcham	64,193	—
Wm. Walkerdine, Ltd., Kensington	63,340	—
Foster & Dicksee, Ltd., St. Marylebone	63,252	64,136
J. M. Hill & Sons, Ltd., Wembley	63,097	—
H. T. Oliver & Son, Ltd., Lambeth	62,786	—
Y. J. Lovell & Son, Ltd., Paddington	62,748	—
R. J. Rowley, Ltd., Tottenham	61,888	62,238
*W. J. Marston & Son, Ltd., Fulham	60,415	60,415

Architect's comparable estimate on Basis B is £60,394.

Construction on Newbery House extension site, Islington, of 24 flats in a six-storey block and 12 maisonettes in a four-storey block, together with 38 tenants' stores and a toddlers' play space:—

S. G. & A. Agombar, Beckenham	£90,106
Y. J. Lovell & Son, Ltd., Paddington	89,666
S. A. Gregory (Builders & Contractors), Ltd., New Addington	89,444
Patman & Fotheringham, Ltd., Islington	89,275
W. J. Jerram, Ltd., East Ham	88,815
A. T. Rowley (London), Ltd., Tottenham	87,634
Rowley Bros., Ltd., Tottenham	87,219
H. Webb (Builders), Ltd., Romford	86,242
*Thomas & Edge, Ltd., Woolwich	85,113

Architect's comparable estimate is £82,715.

Development of Abbey Wood site (now Abbey estate), Woolwich. Tenders have been invited on basis of a "value-cost" contract for construction of roads and sewers and erection of about 2,000 dwellings. In accordance with this form of contract, firms invited to tender were supplied with schedules of prices for use in computing the value of the work and were asked to state whether they accepted these prices or by what percentages they wished them increased or decreased in respect of (i) the road and sewer works, and (ii) the erection of houses, flats and other buildings. The form of contract also provides for contractors' normal fee of 3 per cent. to be increased or decreased in accordance with a prescribed scale should the cost of the work prove to be less or greater than its computed value, subject to the payment to the contractor of a minimum fee of one-tenth of 1 per cent. of the total computed value of the work:—

	Percentage increase in schedules of prices: Roads and sewers	Buildings
Holland & Hannen and Cubitts, Ltd., Westminster	13	13
John Laing & Son, Ltd., Mill Hill	6½	14
W. & C. French, Ltd., Buckhurst Hill, Essex	3½	12½
Sir Lindsay Parkinson & Co., Ltd., Westminser	5	9½
Gee, Walker & Slater, Ltd., Westminster	2½	4
*The Unit Construction Co., Ltd., Feltham	Nil	2½

Extension of warehouses and offices at Stamford Hill depot, Hackney. Tenderers were asked to submit prices on alternative bases, (A) with, and (B) without, provision for fluctuations in the cost of materials:—

	Basis A	Basis B
Marples, Ridgway & Partners, Ltd., Westminster	£85,582	—
A. N. Coles (Contractors), Ltd., Paddington	81,950	—
C. Miskin & Sons, Ltd., St. Albans	81,895	£83,862
Token Construction Co., Ltd., Westminster	81,450	—
E. A. Roome & Co., Ltd., Hackney	80,995	82,450
*Catchpole & Co., Ltd., Potters Bar	76,123	77,623

Architect's comparable estimate on basis B is £77,869.

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Rebuilding of Wandsworth fire station:—

Kerridge (Cambridge), Ltd., Cambridge	£114,411
W. Walkerdine, Ltd., Kensington	100,231
Whyatt (Builders), Ltd., Wandsworth	98,159
Higgs & Hill, Ltd., Lambeth	97,096
W. J. Jerram, Ltd., East Ham	96,778
J. Lawson & Co., Ltd., Acton	96,225
Halse & Sons, Ltd., Woolwich	94,730
Wates, Ltd., Croydon	94,160
Thomas & Edge, Ltd., Woolwich	91,919
*W. J. Cearns, Ltd., Stratford	91,725

Architect's comparable estimate is £88,868.

London (Admiralty).—Particulars of contracts over £1,000 in value.

Devon: Building work, *Wakeham Bros., Ltd., Knighton-rd., Plymouth. *Stirlingshire:* Building work, James Miller & Ptnrs., Ltd., 18, George-st., Edinburgh, 2. *Kent:* Asphalte coverings, *Paramount Asphalte & Flooring Co., Ltd., 149, Kennington Park-rd., SE11. *Carmarthenshire:* Internal painting, *Ian Williams & Co., 59, Queen-st., Cardiff, Glam. Fencing, *Caerphilly Concrete Products, Ltd., Bartlett-st., Caerphilly, Glam. *Devon:* Building work, *Woodman & Son, Ltd., Bartholomew-st. East, Exeter. *Yorks:* Internal and external decorations, *Wm. Latimer & Co., Ltd., Leeds, 6. *Hants:* Building work, *Warings (Contrs.), Ltd., London-rd., Portsmouth.

London (Air Ministry).—Contracts to the value of £500 or over for the week ended November 5:—

Artificers' work: Decorative Painting Contractors, Ltd., 179-183, Staines-rd., Hounslow; Wm. Winstanley & Co., Ltd., Park-pl., Warrington; Chisholm Decorators, Ltd., 701, Sauchiehall-st., Glasgow; W. & J. Taggart (Northern Ireland), Ltd., Dunluce-st., Portrush, Co. Antrim. *Heating installation work:* Brightside Heating & Eng'g. Co., Ltd., 17, Summer-row, Birmingham, 3. *Building work:* Downing Rudman & Bert, Ltd., Spanbourn-ave., Chippenham, Wilts. *Works services:* Roof Insulations, Ltd., 54, Corporation-st., Manchester, 4; Asphalt Specialists, Ltd., Specialist House, St. Philips, Bristol, 2.

London (British Railways).—Contracts placed by London Midland Region:—*Charles & Booth & Sons, Ltd., Hamilton House, Bidborough-st., WC1, standby power house storage tank compounds and workshops in connection with the St. Pancras re-signalling scheme; *A. McDermott, 8-10, Infirmary-st., Bradford, labour only for cleaning and painting of Blackpool Central passenger station; *Henry Tattershall, Ltd., Spotland Bridge, Rochdale, low pressure hot water heating in Fazakerley wagon repair shops; *British Challenge Glazing Co., 14-18, High-st., Stratford, E15, for renewal of roof of No. 1 engine shed with patent glazing at Rugby motive power depot; *A. J. Binns, Ltd., 99-107, St. Paul's-rd., N1, for renewal of fencing in London engineer's district; *Keane Bros., 140, Regents Park-rd., N3, labour only for cleaning and painting of Somers Town coal depot; *Mather & Ellis, Cornbrook-station, Manchester 16, alterations and additions to clock surround and balustrading to main elevation, stone palisade, at Manchester London-rd. passenger station; *Bosworth & Wakeford, Ltd., New-st., Daventry, reconstruction of bridge No. 14a, Northampton to Market Harborough line, carrying Merry Tom Lane over River Nene near railway crossing.

London (Metropolitan Police).—Tenders for building works accepted:—External painting and repairs, Bow police station, *E. Kilburn, £1,461; external painting, Bow-st. police station and court, *J. & W. Heal, Ltd., £1,190; exterior minor redecorations, Hornsey police station, *Druce & Co., £835; external painting and minor repairs, Moylan House, *E. Bull & Son, £730; external and internal painting, Kingsgate-ave., Finchley, *W. Glendinning, £1,842; repairs and redecorations, R. Division telephone boxes, *Ounsted & Co., £917; external painting, etc., Mitcham police station, *A. Soden, Ltd., £635; external and internal redecorations, Erith police station, *R. Butler, £1,165; external painting and repairs, Hendon estate, *H. Pickerill, £5,967; external and internal redecorations, Violet-rd. section house, *R. Woolaston & Co., £2,679; external painting, etc., Kingston and Norbiton houses, *W. J. Cooper, Ltd., £1,156; external painting and repairs, Park-rd., Uxbridge, *W. Try, Ltd., £789; internal cleaning and painting, Aldgate section house, *J. & W. Heal, Ltd., £1,137; external painting and repairs, Wood Green police station, *A. Munn & Son, £840; external painting and repairs, Grove Hall garage, *G. Butters & Sons, £597; provide recreation room and improved sanitary accommodation, Bow district garage, *J. A. Porter & Co., Ltd., £2,126; external and internal redecorations and repairs, Tooting police station, *Sims & Russell, Ltd., £5,398.

London (MoW).—Contracts placed in week ending October 29:

Essex: North Weald radio station, extension of power room, *G. Whiffin & Son, Brynosk, Coopersale, Epping. *Hampshire:* Aldershot, erection of TE and TRS, *W. Lawrence & Son, Ltd., Sun-st., Finsbury-sq., EC2. *Hertfordshire:* PO radio station, Baldock, extension to frequency checking building, *Kerridge (Cambridge), Ltd., Sturton-st., Cambridge. *London:* Cornwall House and annexe, Stamford-st., SE1, internal decorations, *Sykes & Son, Ltd., 8, Essex-st., WC2; Church House, Great Smith-st., SW1, internal decorations, *Clark & Fenn, Ltd., 16, Old Town, Clapham, SW4. *Middlesex:* National Physical Laboratory, Teddington, external decorations, *Deeds (Builders), Ltd., 173, Staines-rd., Hounslow, Middlesex. *Monmouthshire:* Ministry of Health Hospital, Chepstow, alterations to Ward 1, *R. W. Moon, Ltd., 13a, Harrow-rd., Newport. *Montgomeryshire:* PO radio station, Criggion, alterations and additions to short wave "A" building, *W. Watkin & Co., Ltd., Canalside, Llanymyech. *Northumberland:* Ministry of Transport, coastguard

station, Seahouses, erection of coastguard dwellings, duty rooms, offices, life-saving apparatus house and external works, *T. B. Gregory & Sons, Ltd., Seahouses, Northumberland. *Pembrokeshire:* Coastguard cottages, Dale, St. Ann's Head, alterations to form new bathrooms, *W. H. Fortune & Son, "Bronwydd," Portfield, Haverfordwest. *Yorkshire:* Ministry of Health, Chapel Allerton Hospital, Leeds, internal decorations, *A. M. Youngs & Son, Ltd., 17, Carr Manor-par., Leeds, 17.

¶**London (War Department).**—Contracts placed in week ended October 29:—

Berkshire: Painting and decorating, *Fields, Ltd., Reading; miscellaneous, *Gray, Conoley Co., Ltd., London; water supply, *Hinkins & Frewin, Ltd., Oxford. *Cheshire:* Painting and redecorating, *Arnold Sharrocks, Ltd., Rochdale. *Co. Durham:* Building work, *Marsh (Builders), Ltd., Stockton-on-Tees. *Gloucestershire:* Building work, *John Simmonds, Gloucester. *Hampshire:* Air compressors, *Air Pumps, Ltd., London. *Kent:* Painting, *Deeds (Builders), Ltd., Hounslow. *Merioneth:* Drainage, *The North Wales Construction Co., Ltd., Penmaenmawr. *Wiltshire:* Miscellaneous, *E. H. Bradley & Sons, Ltd., Swindon; hutting, *A. J. Dunning & Sons (Weyhill), Ltd., Andover; building work, *C. Syms & Sons, Ltd., Calne.

Luton.—New ambulance depot at Leicester-rd. for Beds Health Com.: ‡Building Contractors, Ltd., Luton, £21,000 (reduced tender, subject to MoH approval).

Manchester.—Following for Regional Hospital Board:—Adaptations to Monks Croft, North Lonsdale, to form nurses' training school. *John Leck & Son (Barrow), Ltd., Ironworks-rd., Barrow-in-Furness. £10,275.—Conversion of building to form pathology laboratory at Oldham & District General Hospital. *Septimus Taylor & Son, Greenwood-st., Oldham. £11,199.

Manchester.—148 dwellings at Langley Estate for TC. *Direct Labour.—2 shops and flats at Northenden for TC. *W. A. Costello, Sale. Sub-contractors: Asphalting & roofing, Neuchatel Asphalte Co., Ltd., 554, Eccles New-rd., Salford 5. Steelwork, Trafford Park Steel Warehouses, Ltd., Manchester.

Northumberland.—Police houses at various towns, for CC: *J. W. Urpeth, Front-st., Bedlington (Cowpen); *Carr & Co., Ltd., Stoddart-st., Newcastle (Forest Hall); *Crawford & Huddart, Ltd., Wideopen (Wallsend); and *Graham & Son, Ltd., Forest Hall, Newcastle-on-Tyne (West Denton).

Renfrewshire.—70 houses at Kirklandnouk housing development site at Renfrew. A: J. Austin Bent (A), 15, Palmerston-pl., Westend, Edinburgh: *Atholl Houses, Ltd., 29, Park-circus, Woodlands-rd., Charing Cross, Glasgow, W.C3.

Sheffield.—Male nurses' hostel at Aston Hall Hospital for Regional Hospital Board. *W. J. Simms, Son & Cooke, Ltd., Haydn-rd., Nottingham. £19,846.

Stalybridge.—Following for BC:—25 houses at Ridge Hill Estate. *Direct Labour. £35,492.—24 houses at Copley Estate. *F. Gannon & Son (Manchester), Ltd., 35a, Richmond-gr., Manchester. £35,510.

Sunderland.—Erection of 25,000 sq. ft. fabrication shed for fitting-out purposes at Manor Quay for J. L. Thompson & Sons, shipbuilders, North Sands; *James W. Ellis & Co., Ltd., 30, Great North-rd., Newcastle-on-Tyne.

Swindon.—Eight shops and 17 maisonettes at Penhill for TC: *Croft & Co., £53,891.

Tynemouth.—40 houses at site between Langley-rd. and Redesdale-rd., W. Chirton: *William Leech (Builders), Ltd., Newcastle-on-Tyne, £49,395.

Wakefield.—Further 100 houses at Kettlesthorpe Estate for TC: *N. B. Bell & Co., Ltd., Frankland-ter., Leeds 7.—30 houses at Balne-la. for MOW: *Harlow & Milner, Ltd., Warrengate, Wakefield.

West Hartlepool.—102 three-storey two-bedroomed flats, for BC. Boro' A: ‡Tarslag, Ltd., Stockton-on-Tees.

West Hartlepool.—118 flats and houses at Outon Manor for CBC: *Tarslag, Ltd.

York.—12 flats at Queen Anne's-rd., for City C. City A: ‡Sorrell (York), Ltd., £10,957.

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